

ARCHITECTURAL

RECORD



JULY 1942

DESIGN FOR DEMOCRACY

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ARCHITECTURAL

RECORD

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VOL. 92

JULY 1942

NO. 1

NEXT MONTH

DESIGN FOR DEMOCRACY is a continuing theme as it is a continuing activity, before, during and after the war. The June convention of the AIA showed a growing realization that the creative professions seek broader concepts, increased public service and revised business methods and organization. Articles in the August issue are pertinent and enlightening in this current trend of thought and action. . . A realistic survey of the present status and activity of architects and engineers, with indications as to their future plans, has been undertaken by the RECORD and the report of first returns in the August issue will show some interesting results. . . No Design for Democracy would be complete without buildings to guard the health of the people, and following this month's Building Types Study on Health Centers, the latest developments in hospital planning, construction and equipment will be made useful in the August Building Types Study and Time-Saver Standards. . . And the technology of the times ahead, so vital to our way of life, is represented in one of the most important educational buildings of recent years, the Technological Institute of Northwestern University, just opened with some fanfare: Holabird and Root, architects; McKim, Mead and White, consulting architects.

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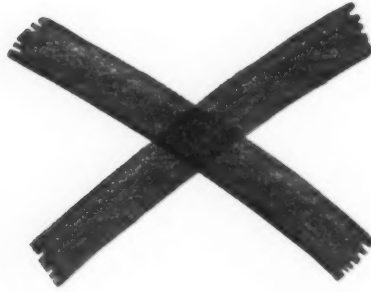
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CONSULTANTS: Industry relations consultant: Thomas S. Holden. Statistical consultant: Clyde Shute. Building economics consultant: Norbert Brown. Field research consultant: Clifford Dunnells, Jr. Librarian: Jane Graft.
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THE RECORD REPORTS

WHO + WHAT + WHEN
WHERE + WHY + HOW

WASHINGTON NEWS

By RAYMOND R. DICKEY

Planned projects to proceed • Dormitories to predominate • Materials shortages • Gulick joins WPB • Public Works Reserve • Priorities

IN SPITE of many confused reports, current estimates of construction for this year remain about the same as they were two months ago. Wartime construction is running at the rate of about \$12,500,000,000 a year, and a further increase in building is expected to send the volume past \$13,500,000,000.

More rigid conservation controls, announced a month ago, were frequently misunderstood to mean the curtailing of the construction program already planned. It has been specifically pointed out that the wartime construction program will proceed substantially as given earlier. The curtailment applies only to a projected but unannounced program of further expansion. Projects in the earlier plans will be given closer scrutiny as regards material requirements, but they will go ahead to completion.

Warfare in housing

Wartime housing will finally swing over into the "for the duration" type, which private industry has been advocating, under the announced plans of NHA Administrator John Blandford in seeking another \$600,000,000.

The Administrator said that 90 per cent of the building to be done under these funds which he is seeking from Congress would be of a strictly temporary nature with dormitories and mass shelter structures predominating.

Thus for the first time since the construction program started, the Administration has divorced the social aspects of the housing campaign from the immediate exigencies of the critically short housing situation. The War Production Board has assured the necessary priorities for the wartime housing structures, Mr. Blandford said.

This determination of the policy which is to be followed in constructing shelter for war workers comes as the result of a long battle within the Administration. Some of the top policy makers in the Government's housing setup have been in favor of using the emergency situation as a lever to socialize housing and set up some uniform pattern of control to be a guide to an expanded post-war public hous-

ing drive. Against these were ranged the group which felt that the vital need (and the aim of any agency charged with erecting housing for war workers) is cheap, quickly built and adequate shelter which would house the maximum number of workers in the minimum amount of time. They also believed that the job of post-war housing should remain in the hands of private industry and should be done *in the post-war period*, not now. This group evidently convinced Mr. Blandford that they were correct.

Materials get tighter still

Despite the fact that the Administrator reports WPB as being willing to give the NHA all necessary priorities under the type of expanded program which he is seeking, serious materials shortages are beginning to plague those charged with the job of getting war factory workers shelter to live in. All metals are unbelievably difficult to get. Even steel is scarce. Plumbing fixtures and pipe are an ever increasing headache. One firm engaged in Government contract housing is planning to turn to wooden shower stalls due to inability to get tubs.

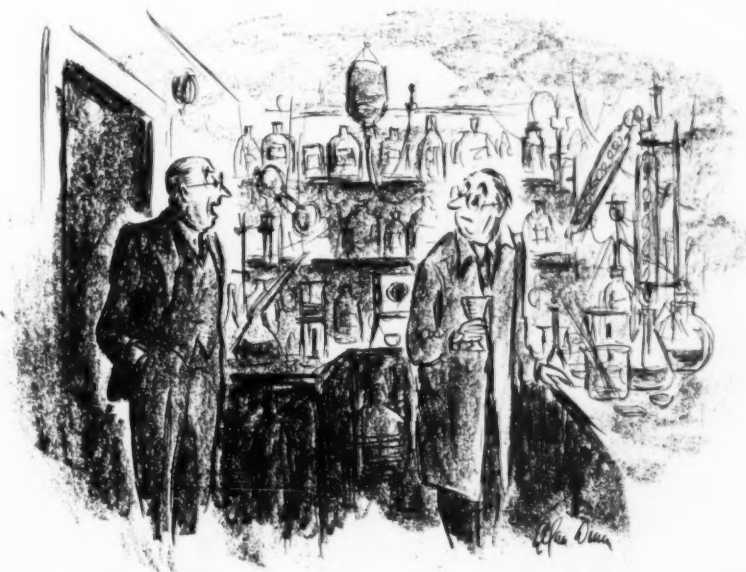
The situation was highlighted in Detroit by the failure of the Government to receive even one bid on the 1,000-home vital Willow Run project necessary to house Ford bomber plant workers.

The Government is getting many stories of employees leaving jobs because they can't find any place for themselves and their families to live. One Government man connected with the Production Division of the War Production Board says that in certain communities the situation has gotten past a place where ordinary standards of decent shelter serve as a principle. He says it is literally true that new employees can't find any place at any price; that some of them are forced to sleep in parks and churches until they finally give up and go home.

For the first time in the nation's history, finished lumber is critically scarce. The big West Coast lumbering area has been placed under a virtual production "dictatorship" headed by Frederick H. Brundage, who is officially designated as "The Western Log and Lumber Administrator of the WPB Lumber and Lumber Products Branch."

Utilities furnishing light and gas to houses built for war workers have been strained practically to capacity. WPB found that several wartime housing projects were completely built,

(continued on page 12)



"Sorry to trouble you again, but I want you to think of a substitute material for that ersatz we made to replace the plastic we were using in place of Buna—"

—Drawn for the RECORD by Alan Dunn

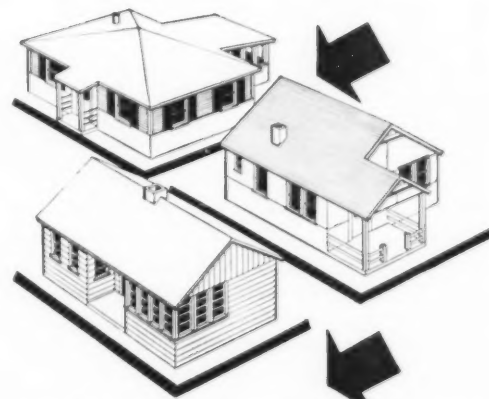


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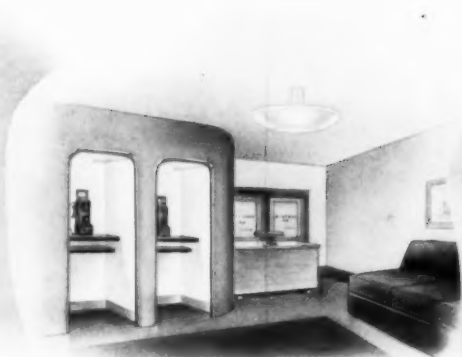
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THE RECORD REPORTS

(continued from page 7)

and then no sewers or utilities could be brought into the development due to material shortage of copper for electric wires and pipe for gas and sewers. This situation has forced WPB to issue an order making it mandatory for builders of houses built with priority assistance to get a certification that they can get utilities service upon completion of the houses.

Public Works Reserve

Last month one of the ace reorganizers of Government bureaus was taken into the War Production Board by Donald Nelson. Luther Gulick, former aide to Louis Brownlow in the preparation of the Brownlow report on Government reorganization and also connected with the National Resources Planning Board, was that man. Chairman Donald Nelson has repeatedly denied that Mr. Gulick came with WPB in order to reorganize. It is a fair guess to assume that the only other job which Mr. Gulick might be doing would be some directive thinking on the post-war planning problem. He has made a rather extensive study of this and was in charge of such work at the NRPB. He has been to England studying what they are doing along the line of post-war thinking, has written several papers on the subject and is widely recognized as an authority in the field.

More than coincidence, it would appear, was a renewed pressure on Congress for funds for a Public Works Reserve almost simultaneous with Mr. Gulick's appointment at WPB. Those seeking a Public Works Reserve fund have been extremely quiet in their maneuvering toward that goal. What they want to do is to have enough funds to make a nationwide survey of projects which might work as a cushion when the bottom drops out of the present war production effort at the cessation of the war. Congress has been resisting pressure to appropriate funds for such a purpose thus far. But with elections coming, they may go sufficiently far to authorize the National Resources Planning Board to go more extensively into such study. After authorization, appropriation may follow when the first deficiency appropriation bill for fiscal 1942 comes up.

There has been considerable agitation by opponents of the Public Works Reserve to let the states and lo-

cal communities make their own plans for post-war projects without using Federal funds for such purposes. After the war, such persons say, Federal funds might be necessary because of the vastness of the job, but not until then. Advocates of using Federal funds for study and creation of projects which could be carried out in the post-war period say that it is necessary for the Federal Government to do the job so that it can be properly correlated. Otherwise, such proponents argue, the planning job will be a hodge-podge of unrelated, poorly thought out plans completely lacking in direction control.

In any event, the tip-off on the whole plan may well come from Mr. Gulick's actions. As one of Mr. Nelson's consultants he is in a strategic position to influence action.

Priorities reach allocation stage

The priorities system has at last reached a fragmentary stage of complete allocation. WPB has ordered all persons using more than \$5,000 of certain specified metals to file by June 30 a PRP application form if they intend to seek any priority assistance with which to get materials. After receiving a PRP certificate, no company can apply or extend any other preference rating except for capital equipment and construction.

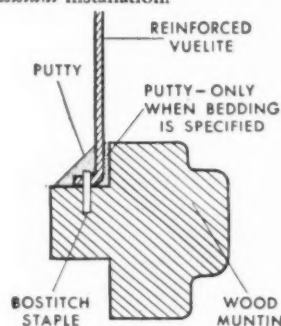
However, this system is mandatory thus far only for metal users. While it will undoubtedly be extended to cover almost all of industry, the other priority instruments now existing will remain for the time. In the case of "P" Orders, such broad orders as P-148, the export order, and P-100, the maintenance and repair order, will continue in effect for some time. So will PD-1A and PD-3A remain in force. PD-1A will still be issued for capital equipment and for all requirements of industries not working under PRP. PD-3A will be used largely as a directive of preferred delivery by the Army and Navy.

Under this new PRP procedure, a user of metal in on the site construction is exempted from the mandatory use of PRP. The Regulation, No. 11, should be carefully studied, however, by every person interested in the priority pattern and trend toward a completely centralized allocations system for all commodities and industries.

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Reinforced Vuelite is available in drawn panels .03" thick with a quarter-inch flange which can be easily and quickly fastened to any conventional multi-paned wood sash with an automatic stapler.

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ASSEMBLY

Due to wartime restrictions on metals most new construction requiring Reinforced Vuelite involves wooden sash. The best way of installing Reinforced Vuelite in steel sash has not yet been determined but there are several which experiments indicate will be equally as quick and easy as the method of fastening to wood sash.

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Standard sizes in which panels of the new material will be supplied are listed below. In addition to these sizes, it can be drawn or formed to special shapes. Unless otherwise specified, panels will be supplied with the quarter-inch flange.

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9½"	x	16"
9½"	x	19½"
9½"	x	24½"
19½"	x	12"
19½"	x	16"
19½"	x	24½"

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Already being purchased for use by our armed forces in war areas, reinforced Vuelite should prove highly useful in troop barracks, air fields, and vital industrial plants in potential air-raid zones and in certain types of military equipment. For samples and full details, inquire: MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield, Massachusetts.

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THE RECORD REPORTS

WHO ♦ WHAT ♦ WHEN
WHERE ♦ WHY ♦ HOW

(continued from page 12)

NEWS FROM LONDON

By J. EUGENE REID

THE most important thing to record this month is the Hun's insensate declaration of war on the architecture of this country. As I write, no further attacks on cities of purely architectural value have occurred since those in the last week of April and the first week of May, and it may be that we shall be able to write off this latest phase of the war as short-lived. But even if the Hun does not drop another bomb on a medieval cathedral, it is a phase that will not easily be forgotten, and it is almost certain to be recorded in history that in the attacks on the cities of Exeter, Bath, York and Norwich, the Teuton was true to the barbaric type.

The narrative leading up to these attacks is familiar. Lubeck and Rostock are ports on the Baltic from which supplies were being shipped to the Russian front, and as such were military targets of the first order. They were towns also of historic and architectural importance, Lubeck, especially, having roots that take it back to the fifteenth century, and it was inevitable that in the course of bombing military objectives in these towns the R.A.F. would destroy some of the medieval buildings. The German High Command made the destruction of these buildings an excuse for storming that in reprisal it would destroy those English

towns starred in Baedeker, meaning, of course, it was the nation's architectural treasures, and nothing else, that were to receive the rubbing out. You see, the High Command assumed the garb of a bull-in-a-china-shop and in its madness the bull forgot to strike where it would hurt us most—at our war industry. Instead its fiery brain flew instantly to those harmless buildings that had given innocent delight to many generations. *Ja*, it bellowed, smash them, burn them up, that will teach the Englanders a lesson! That's the right return for attacking our ports!

When we heard, for instance, that the delicate fabric of the cathedral at Exeter had been ravaged, and when we heard that the fifteenth century Guild Hall at York had gone up in flames, those of us who knew the worth of these buildings felt the acute pang of concern we feel when someone

we love is hurt, and we were angry, very angry. But came the cooler moment and it was clear to us that all the Teuton had done was to expose once more, for the whole world to see, his innate savagery, and if the attacks on our architecture help to drive home the hard fact that it is this savagery the United Nations must batten down, once and for all, if this world is to profess itself civilized, then the casualties English architecture suffers are honorable ones, and they are not to be sentimentally mourned over.

The attacks were made on two of our golden periods. The buildings of Exeter, York and Norwich are characteristic of the medieval period, when the builders of the great cathedrals reached a pinnacle of constructional inventiveness that has never been surpassed. Bath belongs to the eighteenth century, a town in which even now, despite the fact that nineteenth and twentieth century building has scarred its fair face, you can still recapture something of the spirit of that gay and colorful century.

Bath was built by the Georgians for the pleasure of ladies and gentlemen of wealth and position who came to it by post-chaise for two seasons in the year, ostensibly to drink its medicinal waters, but in actual fact to enjoy gay company and good conversation, to gossip and chatter, and to dance the dainty minuet in the Assembly Rooms when dark fell and the candles were lit. It was for this that a father and son called John Wood the Elder and John Wood the Younger, both architects, planned and built over a period of something like 50 years a town which reflects in its ordered streets and squares and in the harmony of its façades, the eloquence of the life lived in the eighteenth century. Inspired by the Palladian manner, eighteenth century architecture was no mere copy book affair; the introduction of the sash window, the sensitive use of the classic idiom, the elegant treatment of the terraced houses, the spatiality of the planning, the awareness of the social importance of good building—all these were influences that gave birth to a living architecture which was, in fact, the last genuine period we had in this country. Bath is an outstanding example of the period.

(The Record Reports continued on page 28)

TARGETS of Baedeker raids. Below, Royal Crescent, Bath, built 1767-75. Right, Assembly Rooms, Bath, 1767-75.



British Combine Photos

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MAHON

(continued from page 14)

TECHNICAL MEN SHOULD SELECT BUILDINGS FOR SHELTERS, SAYS AIA

CALLING on the Office of Civilian Defense to set up a technical service of trained architects, engineers and constructors, to judge the probable reaction to bombing of any group of buildings, the Committee on Civilian Protection of AIA, of which Horace W. Peaslee of Washington, D. C., is chairman, submitted its first report to James M. Landis, Director of OCD.

The report, made public by Richmond H. Shreve, president of the Institute, urged that "with or without headquarters guidance, or stimulus, architects everywhere make the first gestures of technical collaboration, and of organization for action.

"If, and when, and where, the bombs begin to fall," the report continued, "the need is going to be realized—abruptly—that only exact technical knowledge and specific directions will count.

"There are no sweeping generalities which will cover the probable reaction to bombing of any group of buildings," the report went on. "One concrete slab should afford protection: the next one may be unsafe—due either to the type of floor or the relationship of floor and wall constructions. The public should realize that what is needed is spot judgment of the men who designed and built these buildings, one by one—with that judgment reinforced by the latest technical findings on the effects of destructive forces, in form and in time for absorption and application.

"There was a time when fire fighting brigades were organized by those who liked to play with fire: but it sounds incredible nowadays that grownups should play with bombs. . .

"We should be prepared now, we could be ready next month, in every coastal city, with inland technical reserves ready for service wherever and whenever needed. . .

"If men are needed for research or production, we'll help to find them if the specification is made known. It's not pleasant to be gate-crashers, even for would-be rescue parties—but we're strong in our convictions that, both before and after buildings begin to fall, the one last-minute factor of

safety will be the spot judgment of men experienced in the ups and downs of buildings. It is to these men—architects, engineers, constructors, foremen and mechanics—as well as to national and local defense agencies, that we address this plea for teamwork, strongly organized and effectively led, to serve and to preserve our fellow citizens."

The report pointed out that in one city local architects and engineers surveyed four square miles of the business district and selected 77 buildings to shelter 35,000 persons—in one week.

"There are indications, from more than one source, that generalities about non-evacuation of schools are being applied without regard for exceptions to meet special conditions, as definitely provided for in a current OCD pamphlet—exceptions which, in many instances, ought to be mandatory. Certainly, if blind adherence to a blanket restriction prevents moving pupils from an unsafe building to an adjacent building which is safe, or if a jurisdictional situation is allowed to hang fire until something happens to force the issue, the wrath of parents may lead to far more serious consequences than a mere investigation.

Landis approves

Issued with the report was a copy of a letter from Mr. Landis to Mr. Peaslee. The letter said:

"I am of the view that the Office of Civilian Defense can and should perform a function of this character. We are already taking steps in this direction. In addition, I feel that technical men throughout the country including architects, engineers and others can be of very great service to state and local defense councils in offering their services for use on technical advisory committees set up by these councils to work out the application of protective techniques in particular localities.

"It is obvious that the application of such techniques will vary from place to place and that careful study and research by competent technicians must be done throughout the country. I hope that technical men in all fields will feel it a part of their war duty to put their professional services at the disposal of the defense councils for the solution of their problems."

FELLOWSHIPS

THE American Academy in Rome has awarded the \$1,000 first prize in architecture, in its annual competition, to Andrew E. Kuby, Jr., 21 years old, of Evanston, Ill., who was graduated last month from the University of Illinois. The money allotted to second, third and fourth prizes will be shared equally by Allen R. Kramer of Bloomfield, N. J., senior at Cornell, Edward L. Burch of Chicago and Hollis L. Logue, Jr., of Fort Wayne, Ind., seniors at the University of Illinois.

KATE Neal Kinley Memorial Fellowship Committee announces that, as the result of its 11th Annual Competition of Candidates, Miss Justine Emerson Fuller of Urbana, Ill., has been recommended to the Board of Trustees of the University of Illinois for the Fellowship. Born in Bangkok, Siam, Miss Fuller attended school in South India, Germany and Paris. In this country she has continued her art studies with Boardman Robinson, Moise Kisling and Zoltan Sepeshy. The Fellowship provides a stipend of \$1,000 for study or travel.

PERSONAL

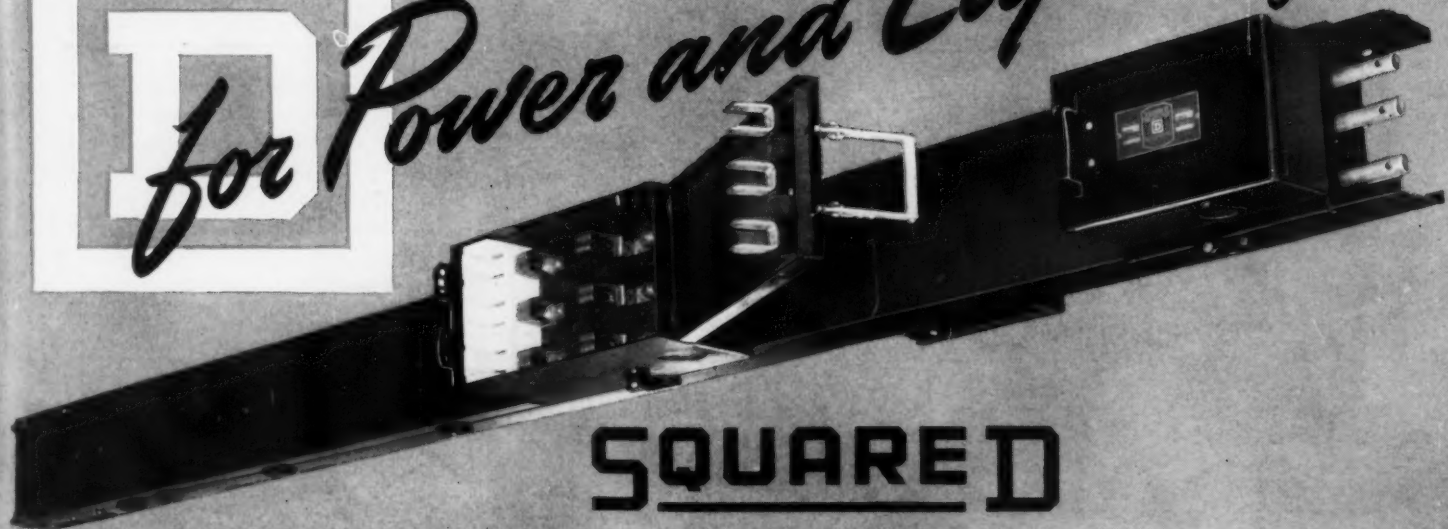
EDGAR I. WILLIAMS has been elected president of the New York chapter of AIA, succeeding Harvey Stevenson. Also newly elected were L. Andrew Reinhard, vice-president, George A. Licht, treasurer, and Hugh Ferriss, recorder.

HOWARD L. CHENEY, formerly Consulting Architect in the Office of the Supervising Architect, Public Buildings Administration, has been commissioned a Major in the U. S. Army Air Forces, his duties to be concerned "with the design and construction and inspection of airports and air bases." Mr. Cheney was architect for the Washington Airport. (ARCHITECTURAL RECORD, Oct., 1941).

CLARENCE W. BRAZER of New York, past president of the Pennsylvania State Association of Architects, was

(continued on page 30)

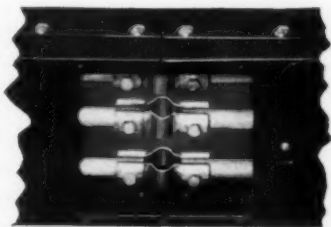
Square D for Power and Lighting



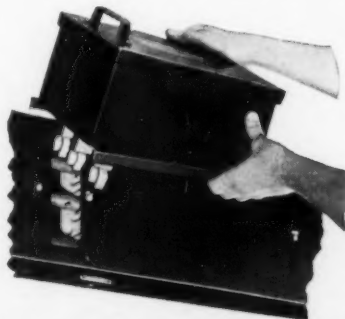
SQUARE D SAFLEX PLUG-IN DUCT

**EASY TO INSTALL—PERMITS SPEEDY
EXPANSION OR REARRANGEMENT**

PORCELAIN INSULATORS are of heavy cross-section with surface corrugations to increase electrical spacings. They are securely mounted every 20" to casings by steel brackets and protected against breakage by shock-absorbing felt pads. Round rigid bus bars are anchored against endwise movement by stop-pin at end insulators.



FLEXIBLE COUPLINGS join bus bars. Special design permits expansion or contraction of bus bars to be absorbed at the joint, and also provides flexible connections for correction of minor variations in bus alignment.

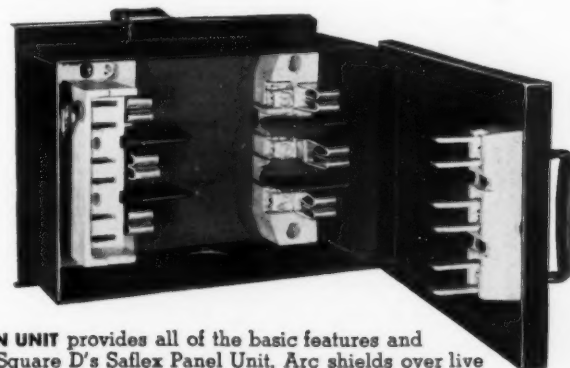


UNITS EASY TO ATTACH. Hook-type bracket on top of plug-in unit attaches to top of duct. Unit is then swung down and jaws snap into position on bus bars. Tightened securely with a single screw—on or off in a jiffy. 12 units may be attached to each 10' section.

In planning new industrial plants and modernizing old ones, architects face a two-fold job—providing for *present* requirements and anticipating *future* needs.

SAFLEX PLUG-IN DUCT solves the problem of meeting *today's* and *tomorrow's* electrical energy needs—with a degree of flexibility which eliminates delays and cuts costs.

In designing or re-designing any industrial plant, you will increase its over-all efficiency substantially by providing this modern method of electrical distribution. Saflex Duct is available in five capacities—from 250 to 1000 amperes in 2 and 3 wire, single phase; 3 phase and 4 wire service for 600 volts and less. Ask your electrical contractor or write us direct for complete details.



SAFLEX PLUG-IN UNIT provides all of the basic features and advantages of Square D's Saflex Panel Unit. Arc shields over live contacts. When cover is open, all exposed current-carrying parts are dead. Positive pressure fuse clips and steel-backed copper contact jaws are used on all sizes. Saflex plug-in units are available in 2 and 3 pole and 3 phase, 4 wire 30 to 200 amperes inclusive, 230 and 575 volts. All units are horsepower rated.

SQUARE D COMPANY

DETROIT—MILWAUKEE—LOS ANGELES

KOLLSMAN INSTRUMENT DIVISION, ELMHURST, NEW YORK

IN CANADA: SQUARE D COMPANY CANADA LIMITED, TORONTO, ONTARIO



The "sleeper" that Lehigh University VOTED MOST LIKELY TO SUCCEED



DECAY and termites were the dangers from which the sleepers under this wood flooring must be protected.

The problem was easily solved, however — for the sleepers "voted most likely to succeed" in this new Lehigh University gymnasium were sleepers treated with Du Pont CZC. Durability was thus assured; "early maintenance" costs avoided.

The useful life of lumber treated with Du Pont CZC is multiplied many times — because it is *decay*

resistant and termite repellent. And this treatment offers all of the advantages of lumber that is fire retardant, clean, odorless, paintable.

Here is a point to remember! CZC treated lumber permits speedy construction because it is one of the few "permanent type" building materials that is readily available. Write for location of plants equipped to render this service. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington, Delaware.

SPECIFY LUMBER TREATED WITH



CZC

CHROMATED ZINC CHLORIDE

THE RECORD REPORTS

(continued from page 28)

awarded an honorary Doctor of Science degree at commencement exercises which commemorated the 50th anniversary of Drexel Institute of Technology, Philadelphia.

♦
VERNON F. SEARS has joined the technical staff of United States Plywood Corporation. As staff architect he will devote himself to a study of plywood application in both prefabricated and field operation for housing and other types of frame construction.

♦
L. ABBOTT POST has been appointed to the newly created post of manager of the American Institute of Steel Construction. Formerly vice-president of Post & McCord, New York erectors of structural steel and builders of the Empire State and RCA Buildings, Mr. Post has recently been attached to the Construction Branch, Production Division of the War Production Board.

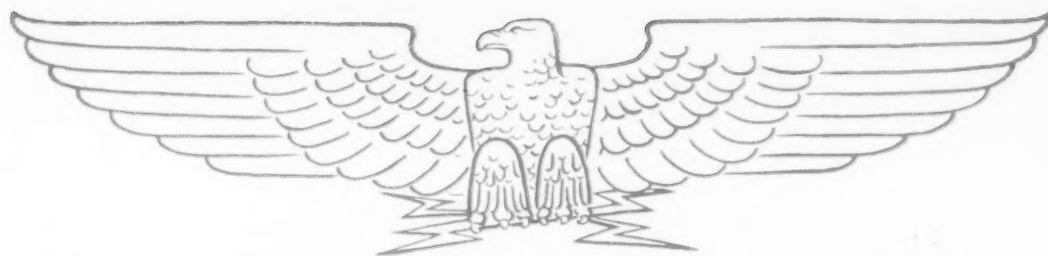
GIVES GUGGENHEIM ESTATE

MRS. DANIEL GUGGENHEIM last month gave to the Institute of the Aeronautical Sciences her 162-acre estate at Port Washington, Long Island. The two-thirds of a mile waterfront and 40-room house will be used for experimental investigation, Major Lester D. Gardner, executive vice-president of the Institute, announced.

Following this announcement came word of the establishment by Glenn L. Martin, aircraft manufacturer, of the Minta Martin Aeronautical Endowment Fund, which will be used to provide research and study facilities at the site of the Guggenheim estate.

Mr. Martin in 1940 was recipient of the Daniel Guggenheim Medal, awarded annually by the Institute of the Aeronautical Sciences in conjunction with the American Society of Mechanical Engineers and Society of Automotive Engineers, and considered the highest award for achievement in aeronautics.

The late Mr. Guggenheim established in 1926 the Daniel Guggenheim Fund for the Promotion of Aeronautics, which endowed schools of aeronautics at many universities and made outstanding contributions to the development of the science. Harry F. Guggenheim, son of the founder, was its president.



"We the people of the United States . . .

. . . in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America."

" . . . Equal and exact justice to all men, freedom of religion, freedom of the press, freedom of person under the protection of the habeas corpus; and trial by juries impartially selected—these principles form the bright constellation which has gone before us." —*Thomas Jefferson, 1801*

★

" . . . They are the two principles that have stood face to face from the beginning of time. The one is the common right of humanity, the other the divine right of kings. It is the same principle in whatever shape it envelops itself. It is the same spirit that says, 'You toil and work and earn bread, and I will eat it.' No matter in what shape it comes, whether from the mouth of a king who bestrides the people of his own nation and who lives from the fruit of their labor, or from one race of men as an apology for enslaving another race, it is the same tyrannical principle."

—*Abraham Lincoln, 1858*

★

" . . . It is for us, the living, rather, to be dedicated here to the unfinished work which they who fought here, have, thus far, so nobly advanced.

"It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they here gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom—and that government of the people, by the people, for the people, shall not perish from the earth."

—*Abraham Lincoln, 1863*

★

"A period of change is upon us. Our opponents, the men of inaction, ask us to stand still. But we could not stand still if we would. We must either go forward or go backward. Never was the need more imperative than now for men of vision who are also men of action.

"We who stand for the cause of progress are fighting to make this country a better place to live in for those who have been harshly treated by fate; and, if we succeed, it will also be a better place for those who are well off.

"We stand for the cause of the uplift of humanity and the betterment of mankind. We are pledged to eternal war against wrong, whether by the few or the many, by a plutocracy or by a mob. We believe that this country will not be a permanently good place for any of us to live in,

unless we make it a reasonably good place for all of us to live in."

—*Theodore Roosevelt, 1912*

★

" . . . We are going to win the war and we are going to win the peace that follows."

—*Franklin D. Roosevelt, Dec. 9, 1941*

★

" . . . Sure I am that this day now we are masters of our fate, that the task which has been set us is not above our strength; that its pangs and toils are not beyond our endurance. As long as we have faith in our cause and unconquerable will power, salvation will not be denied us."

" . . . If you allow me to use other language, I will say that he must indeed be a blind soul who cannot see that some great purpose and design is being worked out here below of which we have the honor to be the faithful servant."

—*Winston Churchill, Dec. 26, 1941*

★

" . . . Our own objectives are clear; the objective of smashing the militarism imposed by war lords upon their enslaved peoples—the objective of liberating the subjugated nations—the objective of establishing and securing freedom of speech, freedom of religion, freedom from want, and freedom from fear everywhere in the world."

" . . . We are fighting today for security, for progress, and for peace, not only for ourselves, but for all men, not only for one generation but for all generations. We are fighting to cleanse the world of ancient evils, ancient ills."

—*Franklin D. Roosevelt, Jan. 6, 1942*

★

" . . . Everywhere the common people are on the march." " . . . The people are on the march toward even fuller freedom than the most fortunate peoples of the world have hitherto enjoyed."

" . . . when we begin to think about the significance of freedom from want for the average man, then we know that the revolution of the past 150 years has not been completed, either here in the United States or in any other nation in the world. We know that this revolution cannot stop until freedom from want has actually been attained. . . . But by our very errors we learned much, and after this war we shall be in position to utilize our knowledge in building a world which is economically, politically and, I hope, spiritually sound." —*Henry A. Wallace, May 8, 1942*



D E S I G N F O R

DEMOCRACY is based largely on the freedom of the individual to develop to the utmost of his capacity and to live a full life, with the limitation that his freedom and action do not interfere with like freedoms of his fellow countrymen. The laws of the land and the administration of government are all designed to that end. This basis of the Design for Democracy has been clearly drawn by the elected leaders of America from the framing of the Constitution to the Atlantic Charter. The task before us in every field of endeavor is to develop the Design for Democracy to incorporate the advances that science has brought. The pattern changes with changing times but the basis of the design remains.

★ There is unanimity of thought and statement throughout the democratic world that this is a people's war, to be concluded by a peace for the ultimate benefit of all people, that the state exists for the individual, not the individual for the state. Democracy is fighting for its life. This war emphasizes the necessity of preserving Democracy at all costs and accelerates the changes in the pattern of the Design for Democracy. Democracy must be both capable of surviving and worthy of the sacrifices and effort. The basic pattern of the Design for Democracy is emphasized by the challenge to its very existence. The importance of the people, the individual, the family is reaffirmed. But what has all this to do with architecture, engineering and building?

★ This return to the fundamentals involves a realignment of our thought and effort to be of greater service to the people. We are realigning our professional and business activity to serve efficiently and effectively. We are accelerating our efforts to create communities in which the individual will have greater freedom to work and play and love and worship, for these are the things men live by. Ours is the continuing task of providing the environment in which democracy works.

★ The first, immediate, urgent task in the Design for Democracy is to **WIN THE WAR**. Otherwise all is futility and nonsense. All man power, brain power, all natural resources, all productive capacity must be devoted to that one first purpose—**WIN THE WAR!**

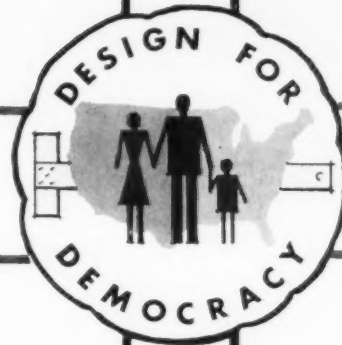
★ The country's construction industry has gone all-out to do just that. Its creative talent, its architects and engineers, its builders and manufacturers, artisans and labor have put all they have and are at the service of their government to win the war. They have gone to every branch of government to place at the disposal of their country experience, ability and resources. They will continue to do so.

★ Many have been, and are, engaged in war planning and construction, many in armed service, many in war industry—but many remain willing but idle, because of the inherent nature of the war work. Those in governmental authority have not found it possible to use all the men who offer their services. These men should be, and must be, engaged in other phases of Design for Democracy. The problems of constructing the physical plant that will permit and engender a better pattern of life for all the activities of all the people require all the men and brains that our government cannot use directly in the war effort.

★ And this is but one part of the Design for Democracy now evolving—it is the construction industry's part, the physical part, our part. Equally important, and of necessity to be served by us, are the developments in the fields of government itself—of international relations, of economic ways and means, of finance, production and distribution, of commerce and transportation, of education, health, recreation and religion. Our part in the Design for Democracy is to plan efficiently and intelligently to provide the physical setting, the means or environment that will best serve and coordinate the needs of the people collectively and individually. It is a big order. It is not a one-man job, or a one-profession job, or a one-industry job. It is a job of coordinated fact-finding, of determining present facilities and future needs, and of developing ways and means to meet them.

★ To be specific, we are not starting with a clean slate to create ideal new dream cities, towns and regions. We are faced with the realities of mushroom towns and decaying cities, blighted areas and slums, rising taxes and bank-

D E M O C R A C Y



rupt municipalities, acute traffic problems and increased rental vacancies, worried Chambers of Commerce and an unenlightened public. Further obstacles are the land prices that bear no relationship to possible land uses, absentee ownership and lots of all sizes and shapes, street patterns convenient only for the conveyance of deeds and leases, obsolete antiquated building codes, assorted rackets and a ponderous public inertia.

★ The replanning of our cities and of our communities in the face of these realities is no easy task. It will require more than a rendered master plan (though a flexible master plan must be worked out, and local architects and engineers must aid in its inauguration or development). It will require a well-conceived plan and program to enlist the interest of all the leaders of the community and of all the civic-minded or public-spirited organizations. It will require the participation of civic officials, the press, educators, merchants, labor organizations, political parties, realtors, bankers, philanthropists, social workers, public utilities, doctors, lawyers—the list goes on and on. But all have a stake in the community — and a contribution to make under expert technical guidance. This is the democratic way. The people, working in their own interests, creating their Design for Democracy. The part that the architect and engineer and city planner can play now is to formulate the program for determining needs and for enlisting the interest of the other factors in the program for meeting those needs. Local initiative is necessary now to take advantage of whatever state or federal aid may be forthcoming at a later day. Post-war employment and local prosperity may well depend on the wisdom and understanding with which the local or regional plan is worked out.

★ It is naturally impossible to “grasp the sorry scheme of things entire, and remold them nearer to our hearts’ desire,” but it is possible to attack those particular parts of the problem in which we can be effective, and to cooperate actively with the other interests in our locality—the city officials, the city planning commission, the builders, producers, housing authority. In seeking those who are alive to the need, or awaking their interest, we will be doing a necessary part in the Design for Democracy. We will incidentally uncover the opportunities for site planning, for replanning, remodeling, and for service in creating the multitude of new buildings that will be required after the war.

★ Leadership is needed now and the opportunity for the creative-constructive professions is implicit. What does this mean to us as individuals?

★ *First.* We must understand more clearly the present situation and the current trend of thought and action, to be sure of our direction. We need the background of a clearer understanding of what is taking place, that we may adjust our work to new conditions. “Understanding may be likened to the fingers of the mind, whereby many ideas are collected in one grasp and so brought under a single and a common idea.” That common idea, expressed by leaders of free nations, quoted on the previous page, is — Design for Democracy.

★ *Second.* We must devote our energies to one of three spheres of activity, the one where each can best do his part, for all are vital in the Design for Democracy — 1. Active military service. 2. War construction. 3. Planning for the building of an America better fitted for the needs of an industrialized, civilized people.

★ In any case we must keep informed of the programs and possibilities for future construction, because the services of men with planning and technical ability and training will be needed as never before. We must keep informed of the trends, of the new needs, the new techniques, materials and methods to be used in meeting those needs. Architecture itself is undergoing significant change — once keyed to monumental display, now it develops stimulating buildings for the welfare and happiness of all the people. The functions, plans and forms of all types of buildings are undergoing rapid changes to meet new demands. Hospitals, health centers, houses, schools, factories, stores — all are evolving in the interest of greater usefulness, efficiency and economy.

★ The future will be ours only if we make it so. Only by winning both the war and the peace can we Design for Democracy.



THE SENSE OF THE

Highlights reflecting the thoughts expressed at the Annual Meeting of the American Institute of Architects at Detroit. Here Kahn was honored, the Washington situation explained, opinions aired, post-war planning discussed, speeches made, professional problems argued, resolutions offered, professional fees defined, by-laws amended, membership clarified, officers elected, Cranbrook visited, Booth honored, factories seen, friendships renewed and Detroit's hospitality enjoyed.

HIGHEST of highlights of the meeting was the annual dinner in honor of Albert Kahn, when, during a blackout, General Knudsen spoke in the dim reflected light from a table lamp. He spoke simply and from the heart, honoring his old friend, Albert Kahn, and inspiring us with his earnest convictions regarding the war effort and the ultimate victory. The citation, read by Charles Ingham, Secretary, . . . *"ALBERT KAHN, exponent of organized efficiency, of disciplined energy, of broad-visioned planning, he has notably contributed to the expansion of the field of architectural practice. Master of concrete and of steel, master of space and of time, he stands today at the forefront of our profession in meeting the colossal demands of a government in its hour of need."*

President Shreve graciously presented the unique medal to Albert Kahn who, with equal graciousness, received it. Mr. Kahn prophesied that after the interval of readjustment following victory America will experience its greatest prosperity. . . . "We may require a couple of years for readjustment, but thereafter should follow a period more prosperous than we have ever experienced. It must be remembered that ours is the only country in a position to supply the devastated lands with all that is necessary for rehabilitation. All this will mean more buildings.

"But where is the money to come from to pay for these?—a question so often asked. This is a detail I am quite willing to leave to economists who will solve the query. Means will be found. As for other types of work—numberless hospitals and schools and public buildings will be required, to say nothing of the housing necessary to make up for the war years.

"Proper planning ahead is all-essential and let us hope that this may include far-sighted town planning, for this is one field in which we have been sadly lagging, one to which we must devote ourselves more wholeheartedly. Endless new problems will present themselves, many of which may be anticipated and must be prepared for—before the

rush is upon us. I am certain that the Institute and its officers are fully awake to the situation and that the necessary steps are being considered. . . . It is indeed a far cry from the work of the artist-architect of by-gone days to the businessman-architect of today. It is to the credit of the profession that many firms have risen to the occasion. . . . In much of the war work building codes have been largely ignored. Stresses have been used for materials far in excess of those heretofore permitted," he explained. "The buildings thus constructed prove the waste caused by obsolete codes from which most cities are suffering. . . . Building codes should permit the maximum, not the minimum as they do today. There should be other laws to protect against the practice of the incompetent. In my opinion, it would be as well to restrict the doctor in the number of pills to prescribe as to insist upon some of our existing building laws. . . ."

Under Vice-President Walter R. MacCornack's chairmanship, the *Committee on Post-War Reconstruction* propounded its views, and the synopses of three post-war programs were presented—the Hansen-Greer Plan, the Urban Land Institute Plan, and the FHA Handbook Plan. In reporting these plans, various obstacles to creating better environments were reiterated: high and delinquent taxes, land prices bearing no relation to land uses, lack of legal power in controlling land, city expansion leaving blight in its wake, inadequate street patterns, artificial city boundaries,—and all the rest. Solutions to problems agreed largely in objectives but differed in details of means and procedures. There was agreement on the necessity for locally-developed, flexible master-plans; the need for public control and large-scale acquisition of land; replanning to reduce population-densities and to accommodate present and future transportation.

Mr. MacCornack's report stated that "We are living through a political, economic and social revolution, and to think of post-war reconstruction as a continuation of pre-

MEETING

ALBERT KAHN, recipient of the AIA Medal, with friends Lieutenant General William S. Knudsen and Richmond H. Shreve, AIA President



Detroit Free Press

war or pre-depression methods will not suffice. . . . Unless constructive and definite plans are made now for the period following this war, there will be unemployment and chaos in the building industry with the result that hastily devised public and private works programs, not based on sound principles, will be advocated and carried out.

"To profit best by the building needs which will arise after the war, architects and other groups in the building industry, including engineers, regional planners, producers, builders, labor, banking institutions, insurance companies, private investors, all types of owners, and government agencies subsidizing construction, should plan ahead by making an immediate and intelligent examination of all the factors involved, with a view to effective action.

"These groups should create an organization pledged to subordinate selfish interests for the common good; they must be free from the government but cooperating with it; they must support sound legislation and oppose unsound legislation. . . .

"The guiding principle of this work should be research, based on the scientific approach which seeks to find the facts and acts on the results of research. Such research should not be done by government nor by those motivated by selfish interests. . . . Such a program should be initiated now and augmented as the war effort comes to an end. There is available ample technical skill to start it. All of the manpower of the profession of architecture might be mobilized to develop it. . . ."

The committee envisions regional instead of city planning in which entire metropolitan and surrounding areas will be brought under one jurisdiction. It speculates on the effect of the post-war type of automobile and airplane on the selection of home sites. . . . "It will not be possible to rebuild cities on the basis of the high land values now existing. The problem of deflating land values must be considered. Cities may be decentralized either on the basis of resettlement of population in areas far removed from

the urban area, or of redistribution within a metropolitan area."

William Stanley Parker, of Boston, said, "Local governments as well as Washington are now too busy to think of post-war efforts. It is too hard to interest them in post-war planning. Sooner or later they must be interested, for, if federal money becomes available for post-war construction, there will be a mad scramble and the squeaky wheel will get the most grease. Local communities cannot wait for federal action before making their own plans. . . ."

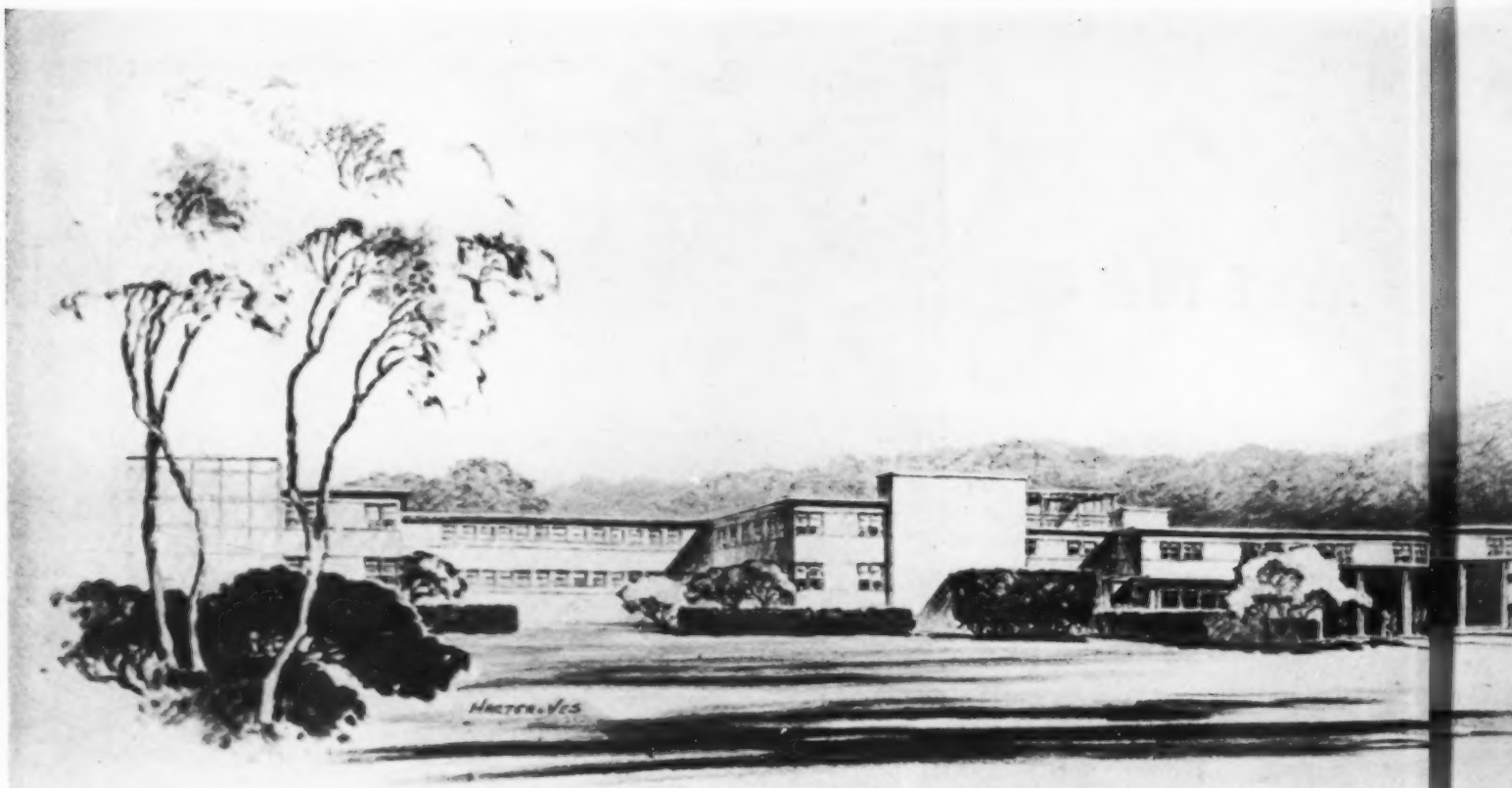
Albert B. Tibbets, of the *Producers' Council*, said, ". . . Apparently this situation will get worse before it gets better. . . . And yet there is so much which this [technical] talent could do now, and for the remainder of the war, that would stand us in good stead when hostilities cease. Perhaps we can somehow find ways to put some of these technical facilities to work in preparation for the post-war period and not allow all of it to seek other occupations, important as they may be to the war.

"Our construction industry will not be mobilized for the post-war period unless there are a substantial number of construction projects on which drawings and specifications are all ready to be put promptly into the construction phase. . . ."

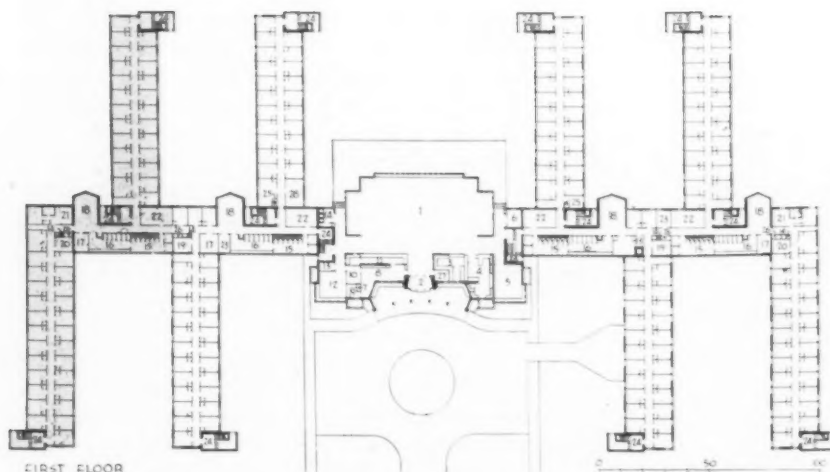
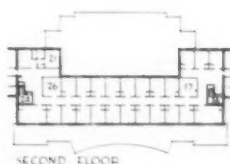
Representatives of organized labor must be included in meetings of the construction industry to insure cooperative action, the *Committee on Industrial Relations* reported. . . . "The exclusion of this important element in the past is, in our opinion, the major reason for the failure of previous attempts at cooperation within the industry," said Chairman A. C. Eschweiler, Jr., of Milwaukee.

A large number of architects cannot be absorbed in the war effort, the *Committee on Architectural Services* found, and to employ them as planners "will involve no detraction from the prosecution of the war and no critical materials." The United States has plenty of devastated areas without having been bombed.

(continued on page 92)



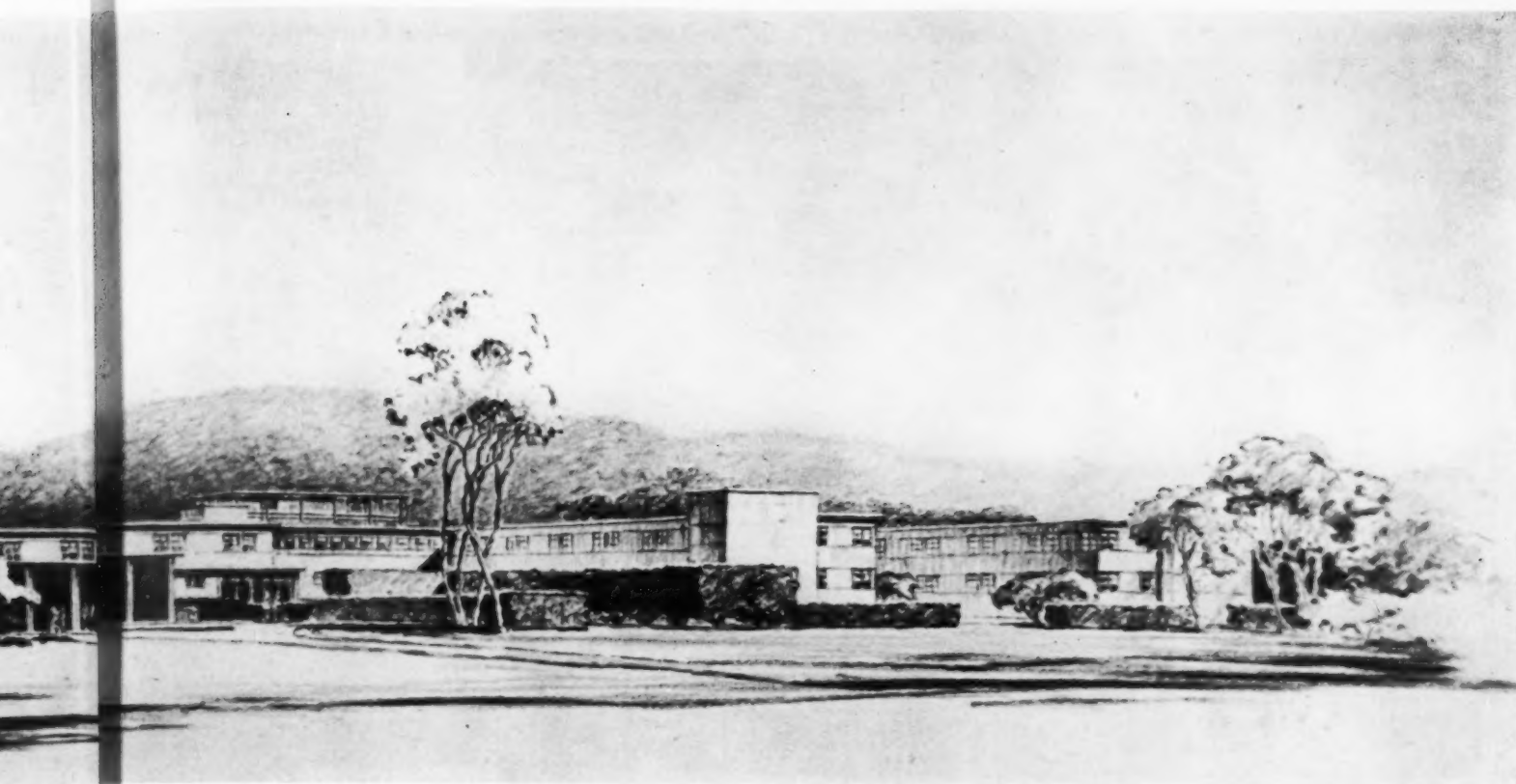
PBA RESIDENCE HALLS FOR WOMEN, WASHINGTON, D. C. DESIGNED TO MEET THE ACUTE HOUSING PROBLEM



Typical floor plan: four "integrated units" and public spaces

DURING the last few years, metropolitan Washington has zoomed from a city of 600,000 to a metropolis of more than 1,200,000, and new wartime workers—both civil and military—still arrive by almost every train. Long since, the usual condition at all near-in hotels has been "standing room only"; rooms-for-rent within walking distance of work are nearly nonexistent, and newspapers make feature stories out of four-to-a-room living conditions. Providing a solution to a part of this increasingly urgent problem,

1. Lounge. 2. Vestibule. 3. Coat check room. 4. Sweet shop. 5. Reading room. 6. Office. 7. Safe. 8. Office (clerks). 9. Mail room. 10. House manager. 11. Clerks. 12. Card room. 13. Closet. 14. Telephones. 15. Showers. 16. Toilets and lavatories. 17. Active linen storage. 18. Parlor. 19. Trucks and mops. 20. Emergency linen storage and blankets. 21. House mother. 22. Domestic room. 23. Diet kitchen. 24. Stairs. 25. Dumbwaiter. 26. Janitor and fire-fighting equipment. 27. Men's toilet. 28. Beauty parlor.



Renderings by PBA

the Public Buildings Administration of the Federal Works Agency has designed for D. C. women workers the residence halls shown on these pages.

The total project—consisting of seven sites of varying sizes—involves 31 residence halls with 12,291 rooms, and 12 other buildings that serve operational, health, social and recreational needs. The designs and the locations—in each case within walking distance of likely places of employment—have been approved by the National Park and Planning Commission.

Made up of a number of "integrated unit plans" (see shaded portion of typical hall plan), the type residence hall shown would be used at all sites—subject only to slight modifications made necessary by special physical conditions. The largest single scheme near the new War Department Building at Arlington Farms (see plot plan, page 43) consists of 14 of the halls, housing 5,787; cafeteria building; administration building; canteen group; assembly building; central laundry; infirmary; and a combined garage, storage and maintenance building. The two smallest of the sites would contain but two residence halls and a minimum of attendant structures.

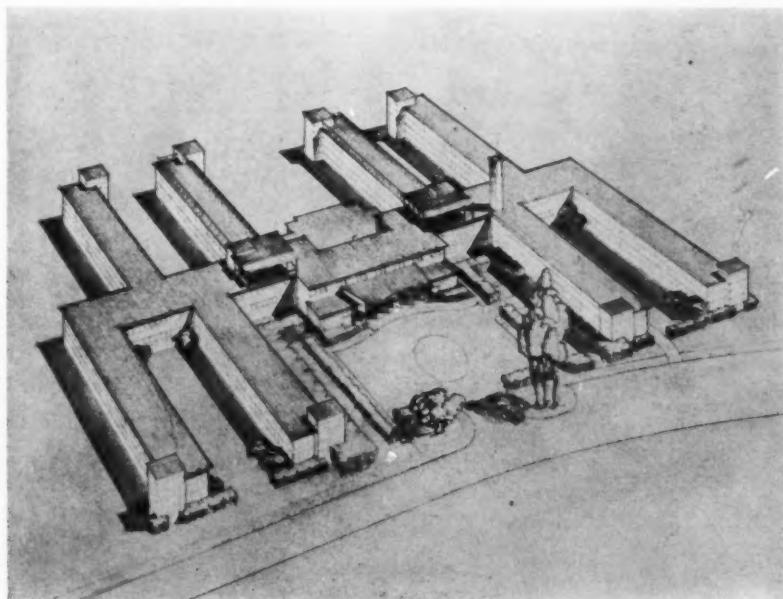
To quote C. David Persina, Chief of the Planning and Design Section of

George Howe, Supervising Architect

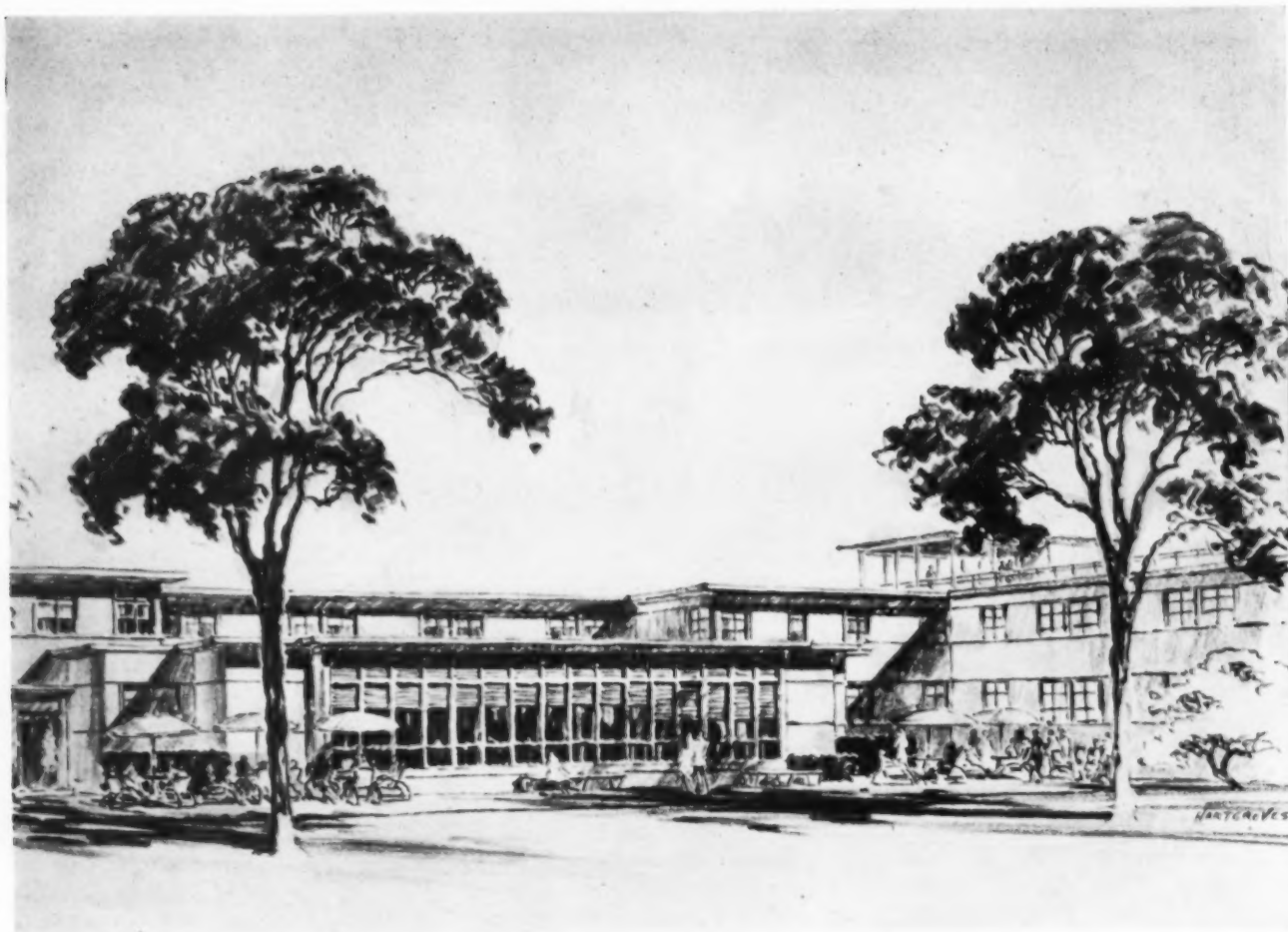
Gilbert Stanley Underwood, Consulting Architect

C. David Persina, Chief of Planning and Design Section

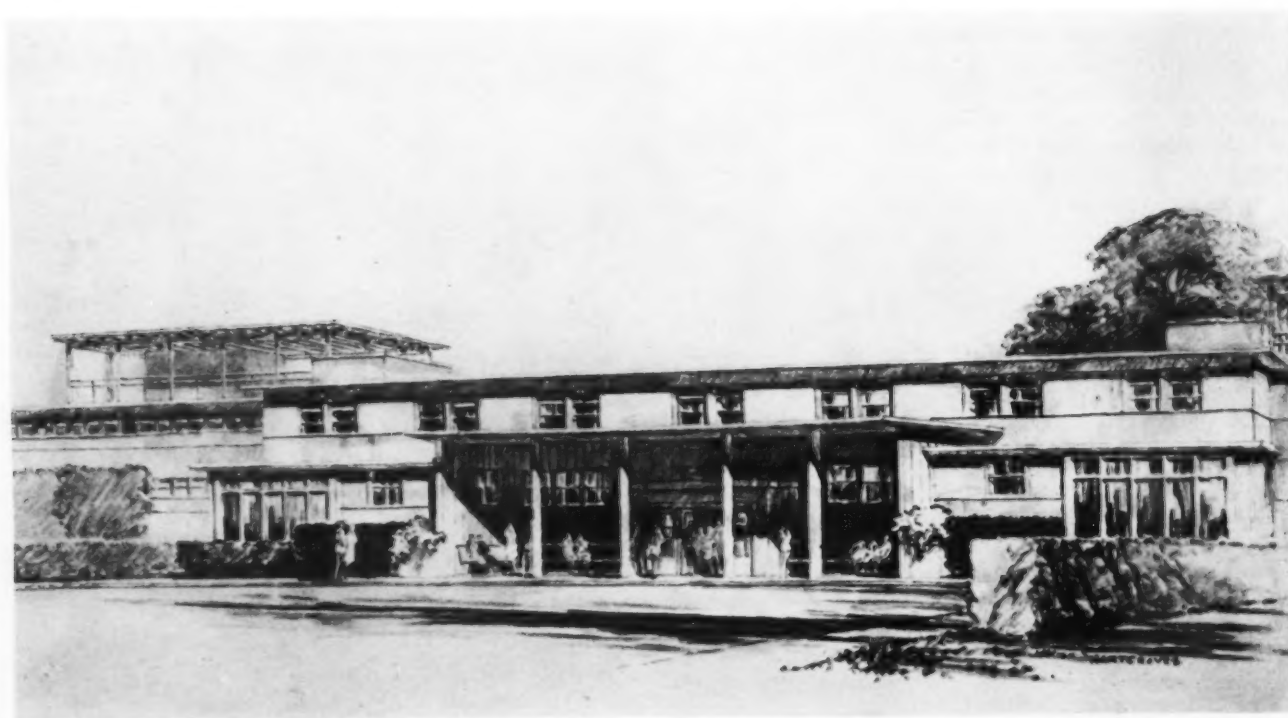
S. E. Sanders, Site Planner



Bird's-eye perspective, typical residence hall



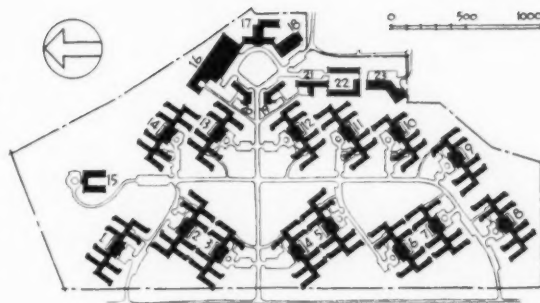
LOUNGE AND RECREATION AREA



ENTRANCE DETAIL

Renderings by PBA

ARLINGTON FARMS, the largest site. The group of 14 residence halls and social and service buildings, combined with a related system of roads and play areas, provide air, light, natural vistas, space for recreation and convenient flow of pedestrians to and from work. Access to the buildings is solely by lanes designed to discourage through traffic. Off-street parking and approaches for delivery of in and out services are provided. Paths, completely separated from roadways in most instances, are for pedestrian circulation to and from work and other areas. Buildings are oriented for maximum light, air and sunshine. 1 to 14. Residence halls. 15. Infirmary. 16. Cafeteria. 17. Indoor recreation. 18. Auditorium. 19. Canteen. 20. Shops. 21. Administration and Post Office. 22. Maintenance warehouse and repairs. 23. Central laundry



PBA: "Each location becomes a separate problem of approach, making it necessary to interpret the requirements of each individual project in terms of space and mass of structure, to interpret the limitations of materials in terms of form, to coordinate the functions of the various physical management and social amenities, and at the same time mould utility and economy into a suitable and functional composition, based on a working relationship of specialists in operation management."

Research and consultation with authorities on economics, sociology and operation management preceded actual planning. Emergency factors were: scarcity of critical materials, need to adopt current methods and materials that would produce the buildings as speedily as possible, and statutory limits of the cost per bed. The final schemes, proposed as practical and economical solutions within the scope of densities permitted by certain fire-hazard restrictions and geographical limitations, provide minimum standards of adequacy in the essentials of living. The size of the typical hall is also predicated on effective supervised control of all public spaces and guest stairways from the clerk's desk in the entrance lobby.

Each building is planned for peaceful living and individual privacy; each of the "integrated units" of a building has its own sanitary unit and private parlor. As Mr. Persina sums it up: "The whole concept is based on the four basic elements which require consideration in the design of human environment. These are people, space, materials, and specific physical conditions, which become not just a shelter responsibility, but one for the development of the fundamental dignity of every being, plus a physical and social pattern within which it can operate."

All buildings will be completely furnished and equipped.

STRUCTURE

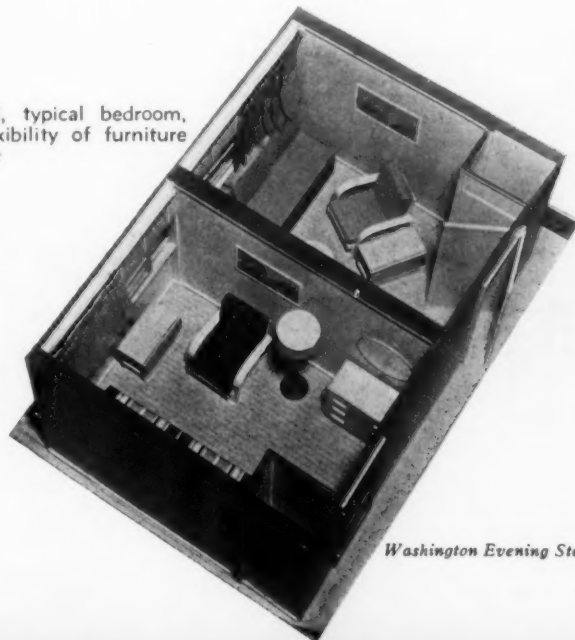
AS DESIGNED, the residence halls are two-story buildings with partial basements; footings are of concrete; basements have brick walls and concrete floors. Exterior walls above the first floor consist of wood posts and girders and 1/2-in. thick asbestos-cement-covered insulation board. Stair towers and stairs are of concrete. Interior walls are wood posts and girders, with 1 1/8-in. asbestos-cement-covered insulation board used for corridor and room partitions. Closet walls are of plywood. Lounges and public spaces are finished with wallboard and a wood wainscot.

The flat roofs are made up of wood rafters, sheathing, 4-in. batt-type insulation and composition roofing. Floor surfaces are factory-finished oak flooring over wood joists (on the first floor: sub-floor and paper). In office and lounge space, floor surfaces are asphalt tile. For showers, toilets and domestic rooms, cement floors will be used; linoleum over plywood is scheduled for kitchens. Ceiling finish: insulation board, with acoustical insulation on ceilings of lobby and public spaces.

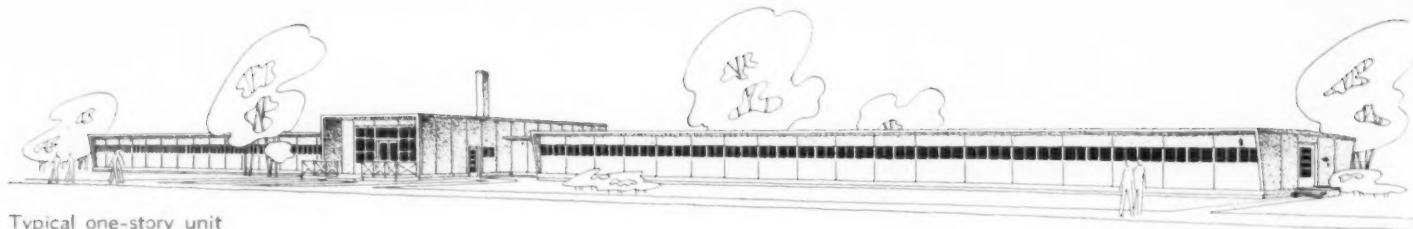
The general structural method consists of a skeleton wood frame, cut to exact size and shape, either at the factory or in the field, notched and grooved as required. The erection job is largely one of assembly. Units of the insulated asbestos-cement wall-board, 4-ft. by 8-ft. in size, are then attached to this skeleton with shorter pieces cut to leave space for windows of any desired width in every alternate course. Prefabricated window frames are fastened in the openings. Another wall panel and a wood girder above the windows complete the side-wall unit. Floor and roof framing are customary joist construction paralleling the frames, with subfloor laid in opposite direction, forming a complete box girder the length of each wing. Exterior walls and interior partitions remain unfinished; windows are of wood, sliding on hardwood guides (providing maximum ventilation and avoiding priority headaches).

Where possible, all utilities will be connected to those now in place serving adjacent sites; auxiliary street lighting, telephones and manually operated fire-alarm systems will be provided; separate heating systems for each building are vacuum steam with cast iron radiators.

Scale model, typical bedroom, showing flexibility of furniture arrangement



Washington Evening Star



Typical one-story unit

FPHA DURATION DORMITORIES FOR INDUSTRIAL WAR WORKERS

Scheme proposed by Paul Nelson, Architect, who has been retained by the Federal Public Housing Authority to assist in developing this latest type shelter to speed war production.

AFTER private enterprise has provided all of the permanent housing it reasonably can for war worker families, after public agencies have constructed permanent, demountable or temporary family units on likely sites, the all-out demand for shelter—enough shelter, soon enough—still calls for more, and more quickly.

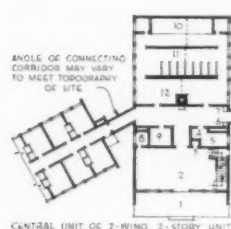
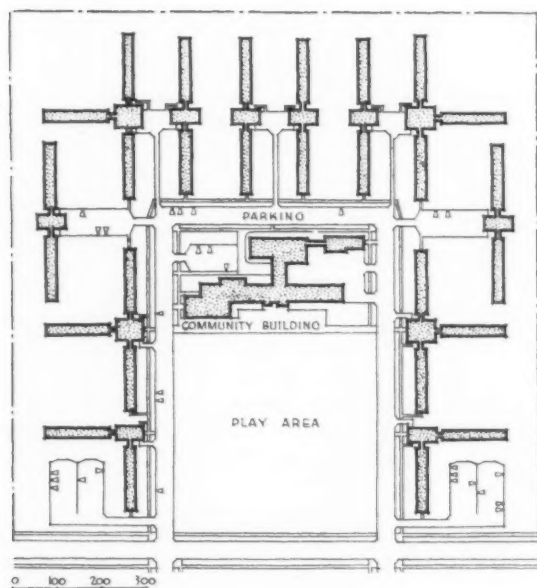
Where possible, some of this slack may be taken up in available war guest rooms in existing private homes. Serious problems still remain in many localities, however. Many of our largest new plants are located well away from established communities; automobile tires are scarce; gasoline is rationed. To hold the production line and keep it moving, additional and adequate housing must be provided, and it must be located near the place of employment.

One bold answer suggested to the problem—for unmarried workers, workers who can leave their families "for the duration," or—in certain instances—married childless couples—is FPHA's duration dormitory scheme outlined here.

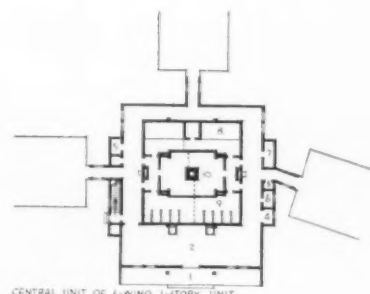
Basically the scheme consists of centrally located sanitary units flanked by either two or three sleeping-room wings. Where the demand requires groups of these units (see diagrammatic plot plan) and/or existing community facilities are not adequate or near enough to serve the increased population, a community building group (see page 46) is part of the project.

In the face of shortages of materials, obvious advantages derive from concentrating plumbing facilities for use of many, rather than (as in separate housing) providing separate facilities for each individual or family unit. And since this shelter is urgently needed and in many cases only for the duration, it seems the height of folly and wastefulness (except where absolutely necessary) to build an entire house or dwelling unit in order to put but a single worker on the assembly line.

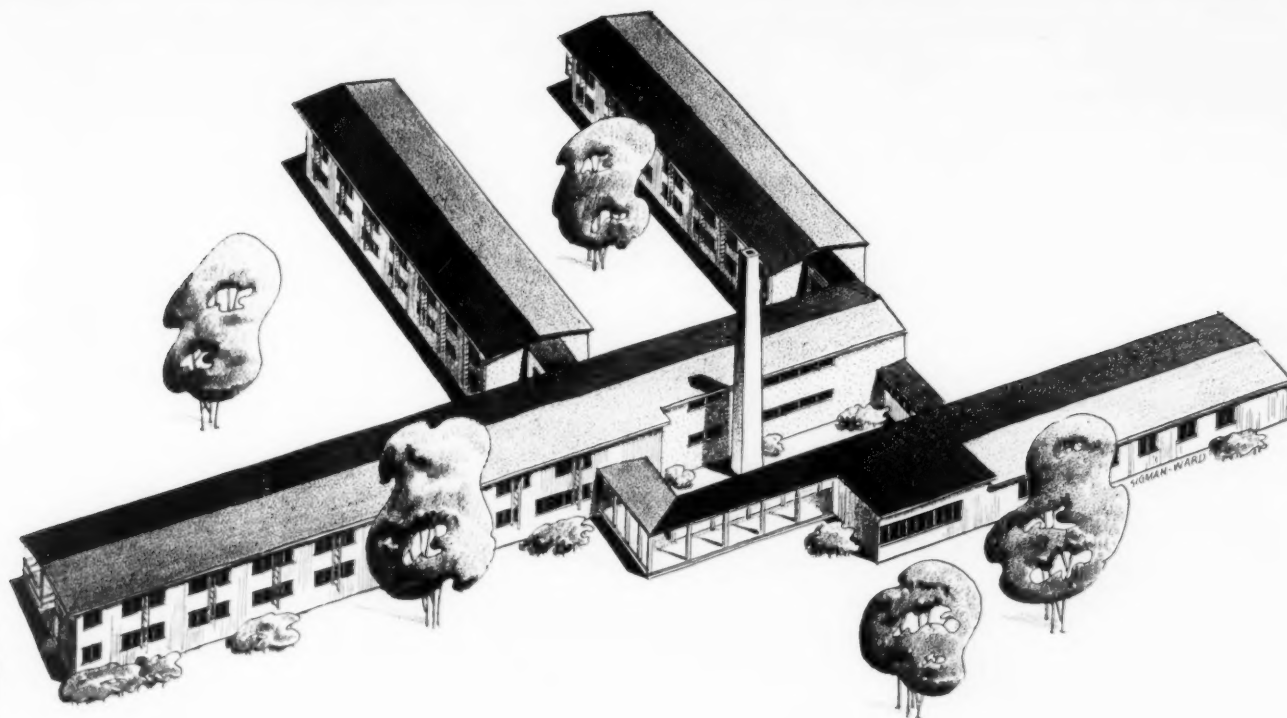
Depending on the proportion of men to women workers, partitions (indicated by dotted lines on sanitary-unit plans) may



1. Porch. 2. Lobby. 3. Telephone. 4. Janitor's closet. 5. Pantry in case of occupancy by women; storage in case of occupancy by men. 6. Linen chute. 7. Rubbish chute. 8. Guest toilet. 9. Clean linen. 10. Showers. 11. Toilets. 12. Wash basins



1. Porch. 2. Lobby. 3. Janitor's closet. 4. Pantry for women; storage for men. 5. Rubbish and soiled linen. 6. Guest toilet. 7. Clean linen. 8. Gang shower. 9. Toilets. 10. Wash basins



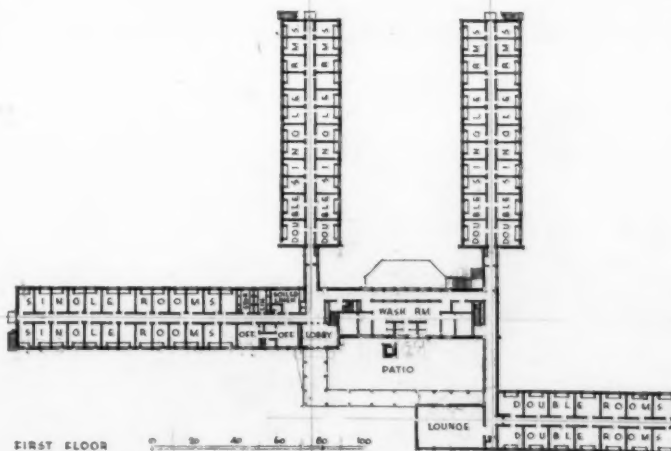
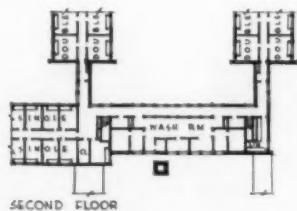
FPHA DORMITORIES **TO SERVE A MIDWESTERN BOMBER PLANT**

SAARINEN & SWANSON, ARCHITECTS



THIS specific project is for a site that is less than a mile from one of our largest and newest war production plants. The plant assembly lines will daily churn out an ever-increasing amount of war material to crush the enemy. To man those lines, these dormitories are designed to turn out daily a group of healthy, well-rested workers.

The group consists of 15 dormitory buildings with space for 3,000 workers (2,100 single rooms; 450 double). In addition, there are two community centers (cafeteria, lounges, taproom and recreation room), one library, and one assembly hall. An infirmary is incorporated in one of the dormitory buildings. Two administration and shop buildings complete the project.





56 HOUSES A DAY—

An FPHA project at Portsmouth, Virginia
 Harland Bartholomew & Associates, Architect
 Barrett & Hilp, General Contractors

LOCATED in a critical war production area, 5,000 of these houses on two adjoining sites are being rushed to completion by the Precision-Built prefabrication system. To handle this impressive assignment, Barrett & Hilp moved bodily across the continent and set up a local factory in a converted fertilizer plant, 12 miles from the sites. Lumber is unloaded from railroad sidings and fed into a line of 18 power saws ringing the plant where it is cut to proper



A 1. Huge lumber carriers lug materials to plant fabricating points. **2.** Insulating board is piled outside, wetted, and kept from warping by sand-

bags. **3.** Cable-end assembly. One worker drops pre-cut pieces in place; another follows along behind, nailing the members together.



C 1. Panels, surfaced on the inside with insulating board, are stacked, ready for transportation to the site. **2.** Hoisted on trucks, they are

brought from the factory to the individual lots. **3.** Soil stacks and pipes are already laid and the house underpinning is in place to receive the



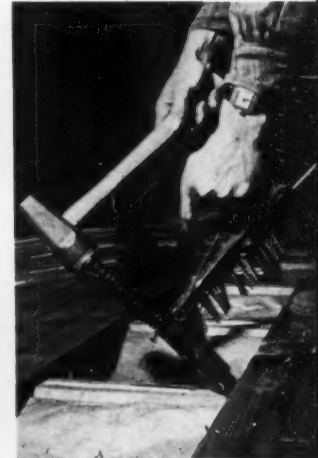
E 1. Ceiling panels and roof sections are raised by means of a greased skid. **2.** Roof pitch is achieved without trusses by propping two sections against

each other at the peak. Shingles go over plywood sheathing. **3.** Sub-assembly at the site produces porch steps, underpinning, front door hood

F 1. A
 crec

by factory fabrication

length; five jig tables are operated to construct floor panels; wall sections are built on 24 other jigs. On the interior side of the panels, large-size insulating wallboard is glued and nailed; on the exterior felt board is used under the redwood siding. At the site, holes are dug, precast concrete foundation piers are sunk, and underpinning is secured to the piers. On this frame, a crew of six men can erect the walls in 15 minutes; ceilings and roof sections follow in short order, and roofing, bolting crews, plumbers and electricians arrive to finish the construction. The exterior walls are spray painted.



B 1. Trucks carry completed gable ends from plant to site. 2. Panel frames take shape on guide-line templates. 3. Wall sections are built

on 24 jig tables. 4. Short lengths of oak flooring are applied by special hammer-screw tool over insulation that has been stapled to the frame



D 1. Floor panels are raised on the underpinning. As soon as floors are laid, heavy building paper is laid over them to protect them during re-

mainder of construction. 2. Walls are next assembled and nailed and braced. 3. A bolting crew then moves in to join them permanently



F 1. A row of houses, nearing completion; the siding is redwood. 2. A creosote mixture is sprayed on exterior walls with a spray gun and com-

pressed-air paint pot. 3. Windows and doors are installed by hand; sash and trim are hand-painted. The roofing is of composition strip shingle



Black Star

PLANNING FOR PLANES

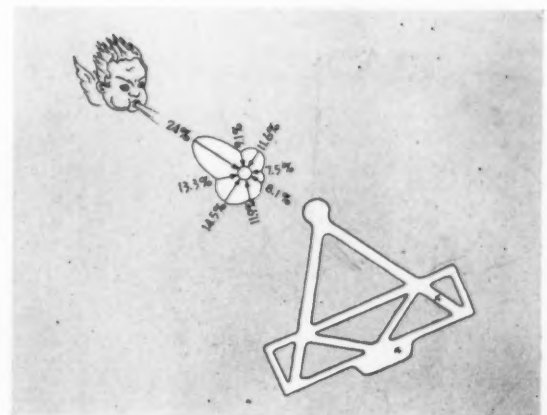
IT DID NOT TAKE the war to show how hopelessly inadequate are most of our civilian airports. For almost ten years commercial flying has been continually outstripping its landing facilities. Great airports were carved out of the landscape at terrific expense, only to be found inadequate and obsolete almost from the opening day. Even before the war an extensive program of airport improvement and expansion was actively under way.

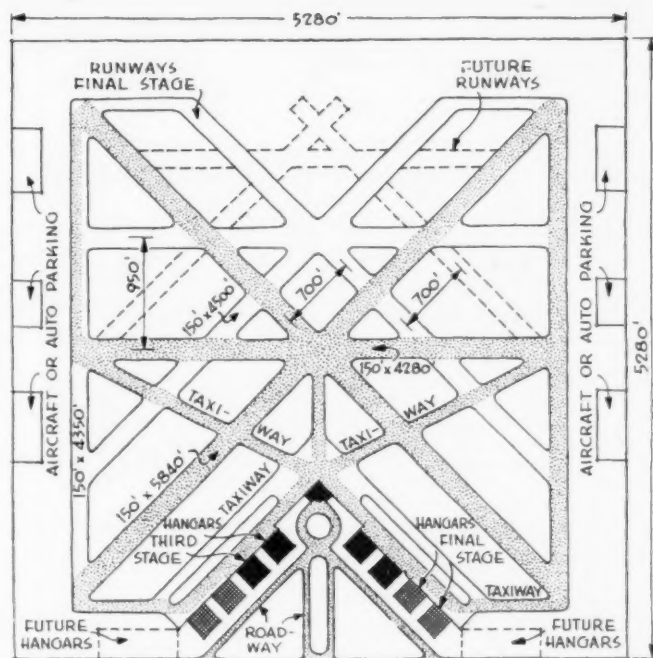
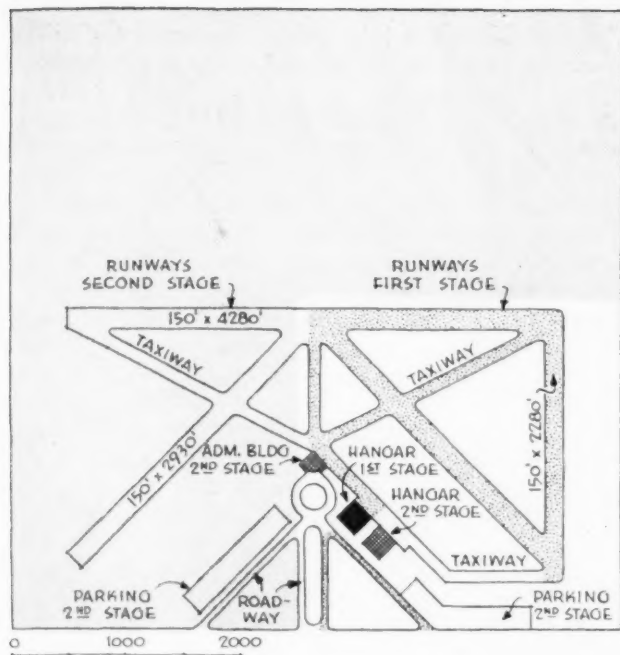
And now each day of the war elevates still further the position of aviation in the scheme of things. Each scurrying revision of the military program causes a raising of the sights as to civilian aviation in the post-war program. Certainly the design for democracy daily gives new prominence to air transportation in all its phases. And consequently points ever more urgently to a vastly expanded program of airports—civilian as well as military, private as well as commercial, for freight as well as for passenger service.

The planning and building of greatly enlarged civilian airports is a post-war task that is not waiting for the post-war period. Whereas much of the actual construction of the buildings, in strictly civilian ports, must wait for a later time, the basic planning of airports need not wait, is not waiting.

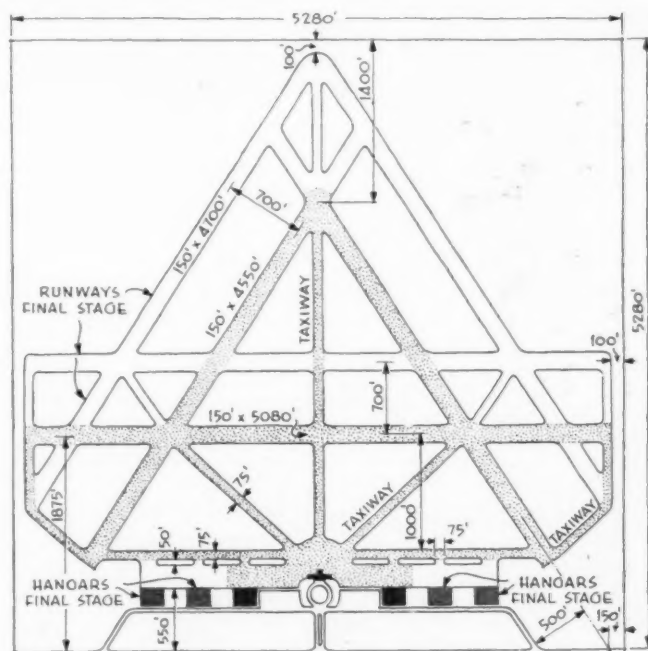
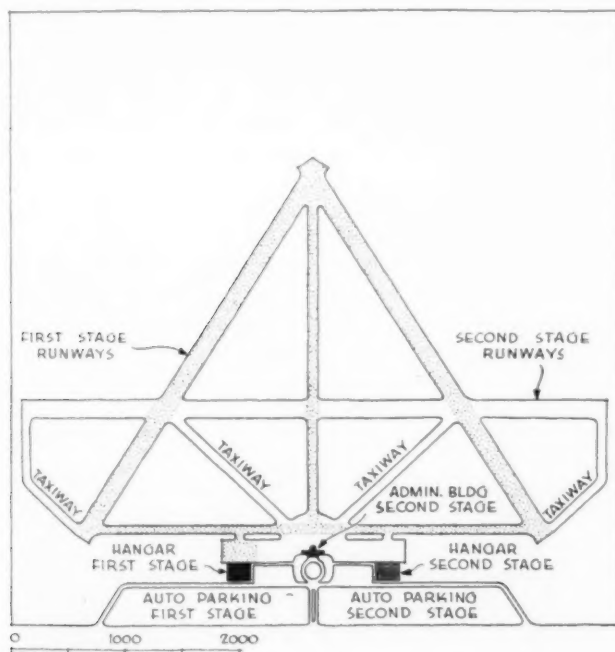
Basic trouble at most airports is simple inability to handle traffic

**AIRPORTS LEAVE THE TOPSY STAGE;
PRESENT A PLANNING CHALLENGE**





Advance master-planning, to avoid the premature obsolescence that has characterized most of America's earlier civilian airports. The two diagrams above show suggested schemes for the stage-by-stage development of a typical municipal airport, as drawn by the Civil Aeronautics Administration to illustrate the planning principles. In the first stage the airport occupies but a fourth of the total area of the square mile originally reserved for it. In this stage there are three short runways, a few taxi-strips, and a single building. In later stages runways are extended and buildings and facilities are added as per the original master plan, until in the final stage (right) there are double or even triple parallel runways, added without disturbing existing facilities



These two diagrams, also by the CAA, show another arrangement of runways, buildings and other facilities. This master plan, which also calls for a full square mile in its final layout, shows the development in three stages, here again the master plan permitting logical and progressive development without any expensive alterations to early construction. This scheme is only possible, of course, where wind conditions permit runways in only three directions. Both schemes illustrate one very important principle—circulation from the runways by taxi-strips. The taxi-strips keep the main runways clear except for planes actually landing or taking off. And since landings or take-offs require but a small portion of the total time, the airport capacity is greatly increased

NECESSARY ELEMENTS OF A MASTER PLAN FOR AN AIRPORT



1. **Property Survey**
2. **Topographic Survey**
Scale 1" equals 200'—contour interval 2'.
3. **Location and Obstruction Map**
Preparation of map showing location of airport with respect to nearby communities, highways, railroads, etc., and also showing location and height of obstructions above level of field within a 30 to 1 ratio from the boundaries and within 3 miles from outstanding obstructions. Any recreational area development in connection with the airport should also be shown.
4. **Aerial Survey and Photographs**
Aerial photographs of the airport and surrounding territory reduced to a uniform scale in the form of a mosaic are a valuable aid in the preparation of many parts of the master plan.
5. **Meteorological Data**
Wind rose data
Precipitation data
Temperature data
6. **Soil Survey Data**
Identification of surface and sub-soil
Determination of soil profile
Determination of ground water table
7. **Grading Plans**
Include plans and profiles of existing and finished grades of the landing area, landing strips and runways, both for present construction and future extension.
8. **Drainage Plans**
Plans should show existing and proposed drainage lines, pipe size, gradients, depth and nature of back-fill.
9. **Runway Layout Plans**
Plans should show location, profiles, cross sections, drainage, expansion provisions, and similar details, together with detailed specifications covering materials and construction methods.
10. **Building Layout Plans**
Plans should show location of present and proposed future buildings, as well as automobile parking area provisions.
11. **Landing Area Lighting Plans**
Plans and specifications should include all present and proposed lighting equipment, indicating sizes, types and locations of lights and cables, transformers, etc., and present and proposed wiring diagrams showing control points.
12. **Utilities Plan**
Includes plans for bringing water, sewer, communications, and power lines to the airport.
13. **Plans for Air Traffic**
Consideration of density and control of air traffic as affecting the airport layout and planning.
14. **Zoning Plans**
Plans for zoning or otherwise protecting the aerial approaches to the airport.
15. **Priority of Construction**
Preparation of list showing order in which units of development should be undertaken.

on the field. Inadequate or improper arrangements of runways and taxi-strips create a bottleneck on the field itself. Whether the trouble is traceable to bad planning, lack of planning, or just human lack of foresight, the fact remains that good advance planning would have obviated most of the difficulties, and saved millions of dollars invested in obsolete fields and facilities. At any rate there is a great task of replanning, or new planning, to be done, and, properly done, it can save tremendous sums in the future.

Fortunately the problems of airport design have had a great deal of study, and much data are available. The Civil Aeronautics Administration of the Department of Commerce has compiled and published a considerable file of information. This article comprises a few highlights and typical layouts and tables prepared by the CAA.

First essential is a master plan for the airport and all its facilities. "Much has been learned in the past few years concerning the necessity of proper planning in the construction of airports," says a CAA pamphlet,* "and the information now available, if utilized, is sufficiently comprehensive to insure satisfactory results. It is a commonly acknowledged and well-known fact that if costly mistakes are to be avoided in the undertaking of any city development, a comprehensive, preconceived plan is of essential importance. Nowhere is this more true than in the selection of a site and the development of an airport. . .

"Before any construction work is undertaken on a newly acquired site, or before any additional improvements are made on an existing airport, a complete master plan which shows the site as it exists at the present time, and also as it is planned ultimately, should be prepared. The master plan should show all present development, including all existing facilities, such as hangars, runways, taxi-strips, administration building, drainage systems, field lighting, boundaries, etc. In addition to all present physical characteristics, the master plan should show the airport as it will ultimately be developed, differentiating between existing facilities and those planned for the future."

Essential elements of the master plan, 15 of them as suggested by the CAA, are given in the check list on this page at the left.

Any proper master plan would obviate one principal difficulty of the past—the selection of a site too small or too hemmed in to permit further development later. Possibility of expansion is the most important factor in site selection. Others include: 1. freedom from obstructions (fairly definite standards have been established, involving the ratio of clear gliding distances to height of obstructions); 2. location with respect to other ports; 3. accessibility; 4. topography; 5. soil characteristics (very important); and a few others.

One of the most important elements in a master plan is the layout of the runways and taxi-strips, shown in the first stages of development of the airport. While the direction of the runways is determined through a study of wind conditions for the particular location, there are a few very important principles about the arrangement of runways and taxi-strips which will have much to do with the traffic capacity of the field. The first is the placing of runways so that additional parallel runways can be added later. Many an earlier airport could just as well have been enlarged had the original runways been properly located. A factor

* Airport Design Information, Airport Division, Civil Aeronautics Administration, Department of Commerce.

AIRPORT PLANNING STANDARDS—TABLE 1

Type of Community	Planning Classification	Recommended Landing Strip Lengths—Sea Level Conditions—Clear Approaches*	Type of Aircraft Which Airport May Safely Accommodate
Small communities not on present or proposed scheduled air carrier system. Includes communities up to a population of approximately 5,000.	1	1,800' to 2,500'	Small private owner type planes. This includes roughly planes up to a gross weight of 4,000 pounds.
Larger communities located on present or proposed feeder line airways and which have considerable aeronautical activity. General population range 5,000 to 25,000.	2	2,500' to 3,500'	Larger size private owner type planes and some small size transport planes. This represents roughly planes in the gross weight classification between 4,000 and 15,000 pounds.
Important cities on feeder line airway systems and many intermediate points on the main line airways. General population range 25,000 to several hundred thousand.	3	3,500' to 4,500'	Present day transport planes. Planes in this classification are represented approximately by those between 10,000 and 50,000 pounds gross weight.
Cities in this group represent the major industrial centers of the nation and important junction points or terminals on the airways system.	4	4,500' and over	Largest planes in use and those planned for the immediate future. This approximately represents planes having a gross weight of 50,000 pounds and over.

* Approaches shall be clear within a glide path of 20 to 1 from the ends of the runways in the case of Class 1 airports and 30 to 1 in the case of Class 2, 3, and 4 airports except for instrument landing runways for which the ratio shall be 40 to 1 from a point 4,500 feet from the beginning of the runway.

NOTE: For scheduled operations of small transport planes 3,000 ft. is the minimum length recommended at present. For other scheduled operations 3,500 ft. should be the minimum considered.

AIRPORT PLANNING STANDARDS—TABLE 2

Recommended Minimum Standards	Class 1	Class 2	Class 3	Class 4
Length of landing strips*	1,800' to 2,500'	2,500' to 3,500'	3,500' to 4,500'	4,500' and over
Width of usable landing strips	300'	500'	500'	500'
Length of runways	None	2,500' to 3,500'	3,500' to 4,500'	4,500' and over
Width of runways	None	150' (Night oper.) 100' (Day oper. only)	200' (Instrument) 150' (Night oper.) 100' (Day oper. only)	200' (Instrument) 150' (Night oper.) 100' (Day oper. only)
Number of landing strips & runways** determined by percentage of winds, including calms***, covered by landing strip & runway alignment.	75%	80%	90%	90%
Facilities	Drainage Fencing Marking Wind direction indicator Basic lighting (optional)	Drainage Fencing Marking Wind direction indicator Lighting Hangar & Shop Fueling Weather information Office space	Drainage Fencing Marking Wind direction indicator Lighting Hangar & Shop Fueling Administration building Weather bureau Two-way radio Visual traffic control Instrument approach system—when required	Same as for Class 3

* All of the above landing strip and runway lengths are based on sea level conditions; for higher altitudes increases are necessary. One surfaced runway is recommended for the effective length of each landing strip for airports in Classes 2, 3, and 4.

** Landing strips and runways should be sufficient in number

to permit take-offs and landing to be made within $22\frac{1}{2}^\circ$ of the true wind direction for the percentage shown above of winds 4 miles per hour and over, based on at least a 10-year Weather Bureau wind record where possible.

*** Calms: Negligible wind conditions of 3 miles per hour and under.

of equal importance is the placing of buildings. The haphazard location of hangars, concessions, and other buildings has often blocked expansion of airports, whereas if a master plan had been drawn this difficulty could have been prevented.

Again, there should be taxi-strips from the ends of the runways to the loading apron so that the runways themselves are used only for landings or take-offs. The traffic capacity of the port is greatly increased by the simple device of taxi-strips to keep the runways clear.

These principles are graphically shown in two possible schemes on page 51. In each case the first stage of development is a relatively small field, but buildings and runways are so arranged that as traffic increases the field can be expanded and facilities enlarged without extensive changes.

Determination of the size of the airport becomes a rather complex problem. Obvious considerations are the types of aircraft to be accommodated, the character and volume of traffic to be expected, and such. But whereas standards have been formulated for lengths of runways under normal conditions (see tables on page 53), there are several complications to be considered. The performance of any airplane is greatly affected by temperature, barometric pressure, and wind conditions, also to a certain extent by the type of runway surface. It is apparent, for example, that a soft sod surface offers great resistance and friction, so that longer runs are necessary for a take-off. The barometric

pressure is also quite a factor in length of runs necessary for take-offs; barometric pressure is not only a matter of elevation above sea level, but also local wind conditions.

Wind is less of a factor than might be imagined in determining the size of the port. Wind of course decreases the necessary landing and take-off runs, but regardless of average conditions the port must be designed for the least favorable condition—a dead calm.

An item which has frequently received too little consideration is the matter of soil characteristics. An investigation of soil conditions is an important part of the planning for development of an airport site. The character of soil profile, including such factors as ground water level and drainability, subgrade support for runways under all wind conditions, suitability of the soil and runway stability, are all factors of importance. A development of recent years is the scientific study of soil as an engineering material. The rule of thumb methods are gradually disappearing as knowledge of soil types and possibilities has increased. Suffice it to say here that much data are available on the performance of various types of soil and the tests that are necessary. For a single example, it has been found that a great many failures in pavement surfaces and roads can be attributed to the susceptibility of soil to change in volume with variation in moisture content. In recent years, corrective measures have been developed to eliminate the undesirable property of excessive shrinkage or expansion with changes in moisture conditions.

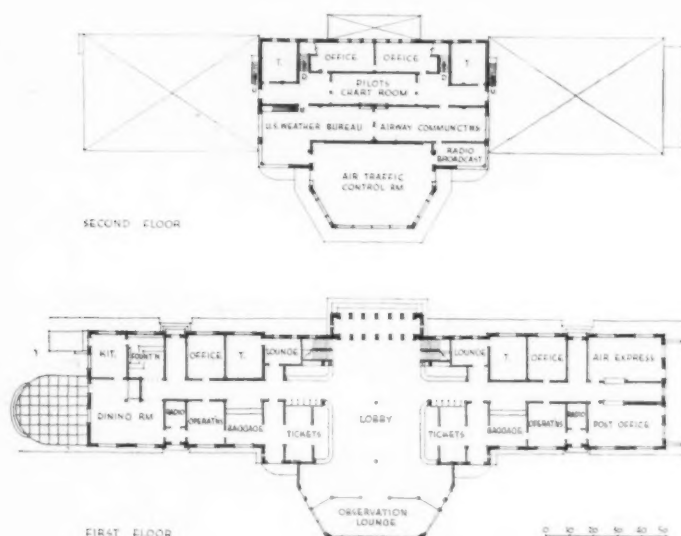
Similarly, considerable study has been devoted to characteristics of various types of runway paving, including such considerations as static and dynamic loads the runways must withstand. The considerations here range from the friction of the surface to the effect of loose particles of stone, gravel, etc., that might be drawn into propellers.

The CAA also has much general counsel to offer as to general requirements for buildings and as to their location on the field. Perhaps the most serious problem in this respect in older airports is the lack of sufficient parking facilities for automobiles. In general, also, the same lack of foresight has been rather widespread in the provision of buildings of adequate size.

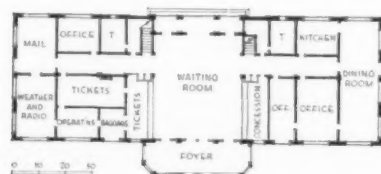
When a small terminal building is built initially to meet immediate needs, it should be planned as the first unit of a larger structure. Similarly, the location should be chosen so that separate buildings can be added to the group.

General requirements for the administration building are illustrated in floor plans on this page. Facilities commonly included are a manager's office, commanding a view of the landing area, U. S. Weather Bureau and communications offices, together with telegraph and information offices, comfortable waiting rooms overlooking the landing area, rest rooms, restaurant, roof garden, baggage, mail, express and check rooms, telephones and concession stands. Provision should also be made for a traffic control tower, depending upon requirements of the airport. Another general comment might be that standards of passenger facilities are continually improving, so that the proper arrangement of them is taking on an increasing importance in the efficiency of the port.

Indeed, it is not too much to say that airport planning has been conspicuous rather for its absence than its success. By the same token, the times offer a considerable challenge to planning and a vastly expanding field for its best efforts.



Necessary elements for the administration building for a medium-sized airport, in an expandable plan drawn by CAA



Basic floor plan requirements for an inexpensive administration building for a small airport, as suggested by CAA



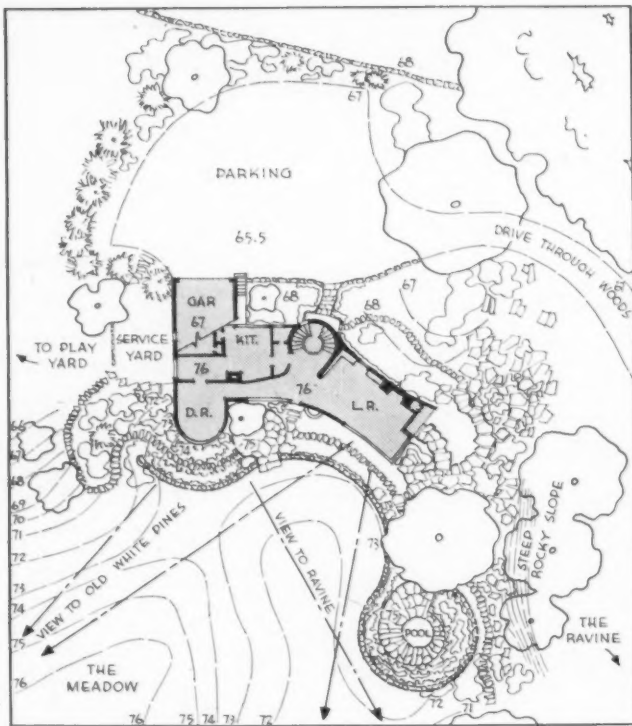
ACCENT ON SPACE

By **PROFESSOR JEAN LABATUT**
Chief Critic of Architectural Design,
Princeton University

Clients: Mr. and Mrs. Thomas S. Holden
Architect: Holden, McLaughlin and Associates
Interior Consultant: William Muschenheim
Landscape Architect: Charles Middleleer
Contractor: Adams-Faber Co., Inc.

STRANGELY, the architectural profession as a whole seems partially to have lost the sense of *the value of space* serving all aspects of human life: physical, intellectual, and spiritual. Architects, for the most part, have spent the last hundred years running after predigested architectural styles and modern gadgets, trying desperately and with very little success to mate them. Therefore, when I see an example of architectural space well organized, with inner and outer space acquiring a high value, I cannot hide my enthusiasm, nor my optimism with regard to the future of the architectural profession.

Happening to see in Arthur Holden's office the above photograph of the residence of Mr. and Mrs. Thomas S. Holden, located in Darien, Connecticut, my curiosity was aroused. I was impressed by the possibility of seeing from one point the inner and outer space, the facade as well as the interior, the ensemble showing similar value of illumination. I have since visited this house. I saw what I expected and more. I hope the few following remarks



may supplement what even good photographs cannot give, that is, all the surrounding forms without which the value of space cannot be felt and appreciated.

A drawing or a photograph shows forms, but diminishes the capital importance of the space in or around which these forms evolve. Architectural documents transmitted with only a partial view of the forms surrounding the spectator have caused false interpretations and the birth of many architectural solutions more fantastic than reasonable. Heavy, massive architecture of the past is indeed very photogenic and very complacent in front of the camera, but the principle of massive architecture for a peacetime house is something of the past. Horses galloped and will always gallop, the stagecoach has disappeared, the massive structure is receding, giving space the first place in the definition of architecture.

Several years ago, wishing to emphasize the preponder-

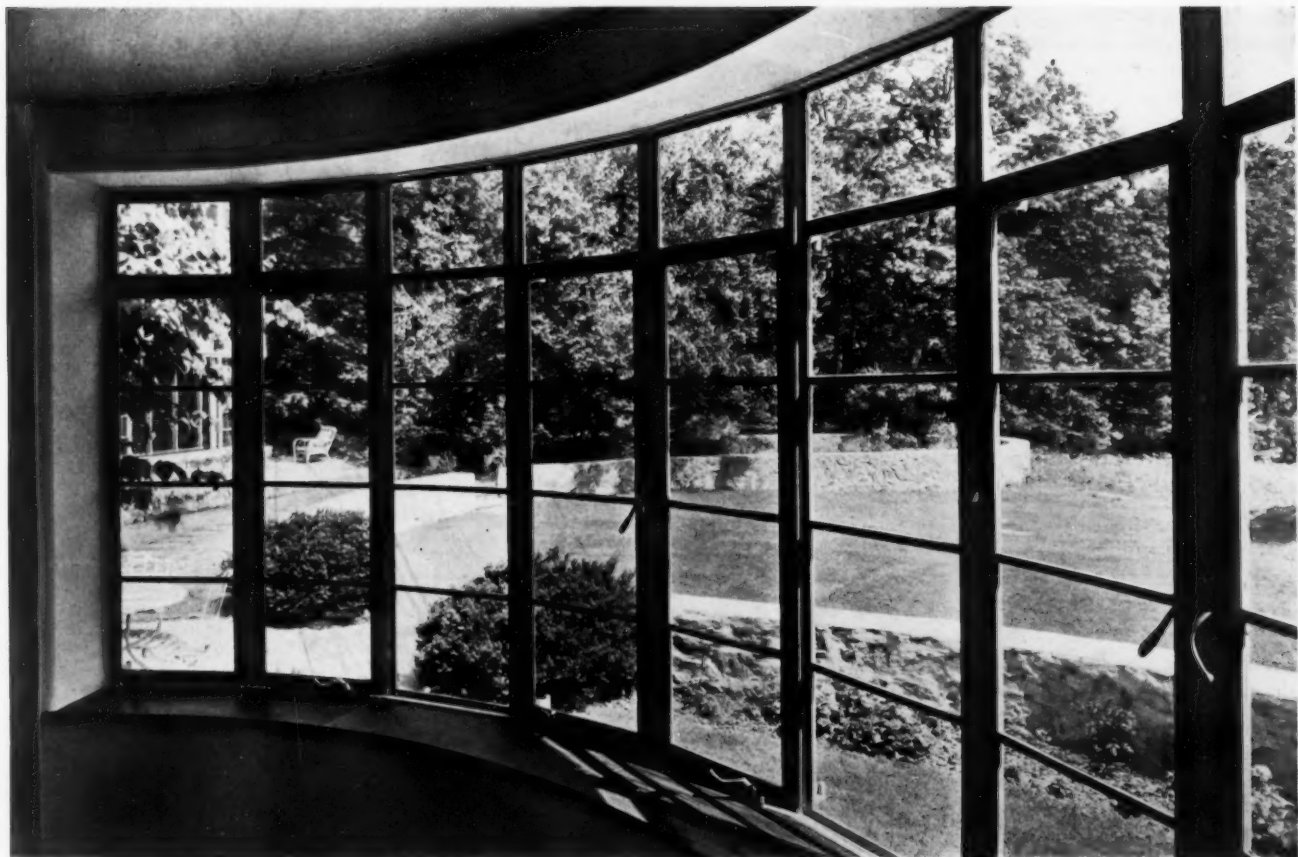
Placed to develop to the full the advantages of an unusual site—on a rocky hill, heavily planted—the house becomes a logical gallery for beautiful views of old trees, ravines and meadow. The curving facade is naturally related to the wide panorama, also to the contour lines of the site. Complementing the curved facade, a low wall, curving similarly, connects and unifies the house with trees that frame the views



Day and night views of main entrance from parking area, opening to circular stair tower



South facade and terrace as viewed from the pool end of the terrace wall

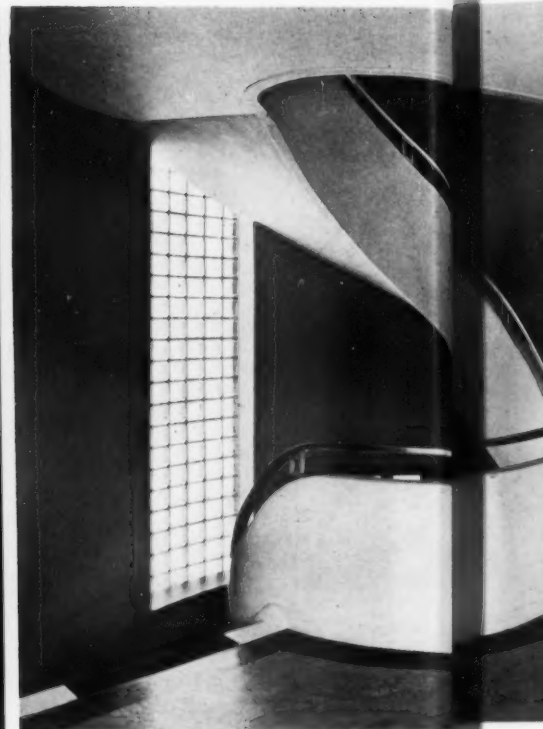


Samuel H. Gottscho

Dining room view of the garden wall, which ends in a voluted pool enclosure at the far end



From the living room along the gracefully curving corridor to the dining room



Openness of circulation affords a wide open view

ance of space in architecture, I wrote the following definition of architecture in a prescription form, for my students: "Organization of space limited by matter in equilibrium, expressed by the precise relation of form and color in light. (Shake well before using.)" In the case of the Holden house, the importance placed on space organization and the energetic shaking are very obvious.

The site—on top of a rocky hill, heavily planted—is unusual. The informal enclosed landscape created at the highest levels can be compared to a bird nest, the house to an open shell. Approaching the house by a ravine, after a few turns and ups and downs, one can see the nest high in the trees with a part of the house visible across the tall green vault of oak leaves, far from the aridity, noise, and darkness of the city of artificial light—New York.

After a last short ascent and a last turn, one finds himself within an informal court giving access to the main entrance, service entrance, and garage. The court is limited by the trees except for the facade which is pierced here and there, only where necessary, for circulation, ventilation, and light. This facade is oriented to the north.

While the mechanical eye of a wide angle camera can make forms and space do all kinds of acrobatics, the human eye cannot. The facade can be seen only in parts and seems to melt into nature.

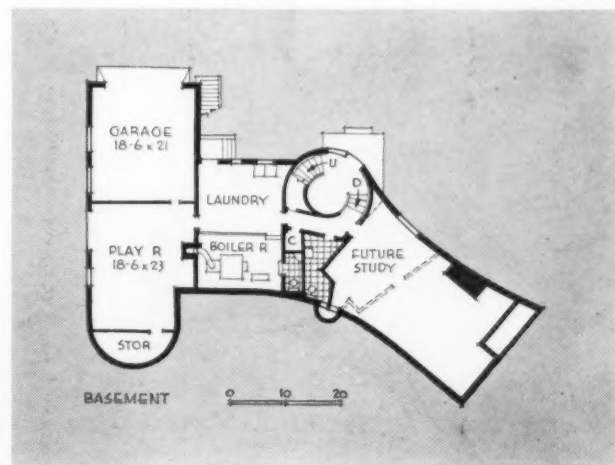
Already from this point of observation, we have the strong feeling that the curved facade is the consequence of reason and not of fantasy or a preconceived judgment. We can see the logic of the clients, who did not request a main entrance of a certain style; this in spite (or because?) of the fact that they had previously lived in an authentic early American Colonial house. As a matter of fact, because of circumstances from one generation to another, in one part of the country or another (including years in Texas), the long tradition of this nomadic New England family has always been to face new situations without prejudice, without transition. How fortunate the

architect, the decorator, and the landscape architect were to have as a client a new generation of an old American family continuing such a tradition.

The main entrance is approached by easy, comfortable stairs, slightly curved. Thinking of the extreme rarity of comfortable steps in contemporary landscape and architectural solutions, one is impressed by this particular solution, which approaches perfection: progression in the risers and regression in the treads, starting from the low level, with curved plan for the stairs, thus giving to persons of different heights, going at different speeds, the choice of the line of least resistance.

Approaching the door and passing through the main entrance and into the house, no one can mistake the fact that the door of the house is at its logical place, appearing as the natural consequence of inside and outside space organization.

Upon entering one feels how strongly and freely space





ords a wide open view of circular staircase



Samuel H. Gottsch

"There is no frontier between the interior and the exterior part of the landscape"

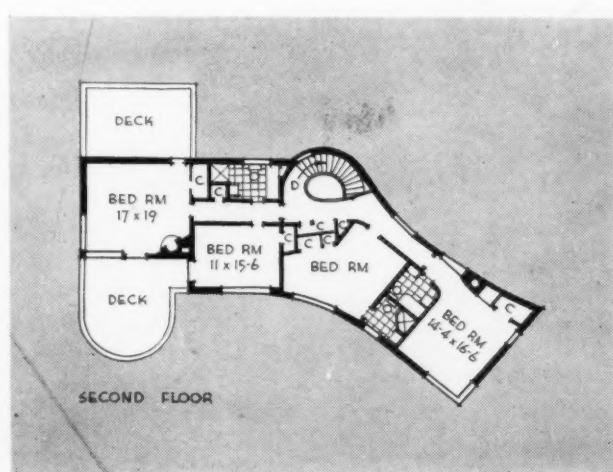
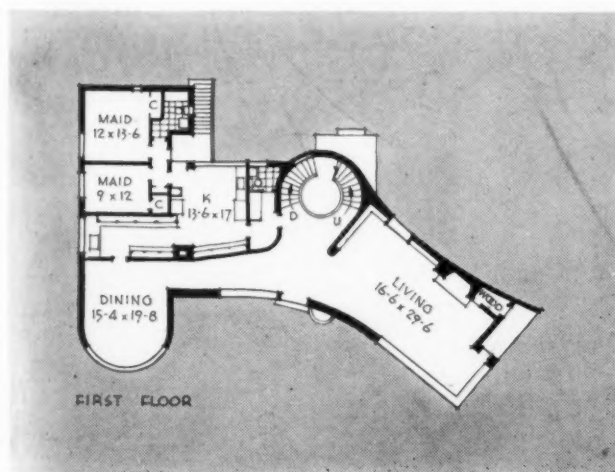
dominates. The absence of parallelism between walls and the absence of doors gives a great fluidity and value to space, yet privacy is insured between circulations, living room and dining room by the curving and treatment of walls. Curved walls mean here economy of space, interpenetration of space, isolation of necessary space for service without unnecessary volume of construction. A few walls at right angles suffice to give the tranquility and static effect desired.

The emphasis on free and fluid space is felt throughout the house. The rooms toward the south are an integral part of the garden: one landscape for all and all in one landscape—the word landscape meaning a portion of land or territory which the eye can comprehend.

There is no frontier between the interior and the exterior part of the landscape, only a crystalline lens. The south facade or diaphragm is reasonably open and curvatures express admirably the most hearty and warm welcome

that the house extends to the outside world of nature. The curved facade seen from inside, across windows of reasonable size, gives a feeling of great comfort, great freedom of space, and unusual unity between the outside and inside illumination.

The curved facade seen from the outside shows a much larger wall area than expected. While the scale and quality of the texture obtained by concrete block on a curved surface is very interesting, I had a feeling of heaviness which seems to diminish the size of the openings. This may be the result either of over-enthusiastic or self-conscious Lally column—that new order which has found its way into architecture. Supporting a heavy mass, "little Lally" seems to be more proud than Atlas supporting the world, particularly when she allows a corner window under a heavy wall. Then neither the King, nor Atlas, nor the Five Classical Orders are the cousins of that little snob. But in this case the facade or diaphragm fits so well with





Dining room is done in white and dark gray for walls, orange for ceiling

"That wall underlining the house seems to appear from the natural green wall of the hilltop and stops in a free motion as a volute drawn by the skater who went too near a ledge and turned back in a hurry." The feeling of the volute is brought to a completely natural finish in the flagging around the lily pool, its mathematical regularity softened by flower beds

nature that the particular situation of Lally is quickly forgotten.

By a single gesture complementing the curved facade, a low wall connects and unifies the house with the trees at the edge of the woods which enclose the landscape. That wall underlining the house seems to appear from the natural green wall of the hilltop and stops in a free motion as a volute drawn by the skater who went too near a ledge and turned back in a hurry. From this wall surrounding a terrace one can see the ravine. Down in the cool shade of the oak trees, a natural pond reminds one of the sacred well of Chichen Itza.

Natural, uneven levels were preserved as near the house as possible. While the land disappears from sight or climbs to a higher



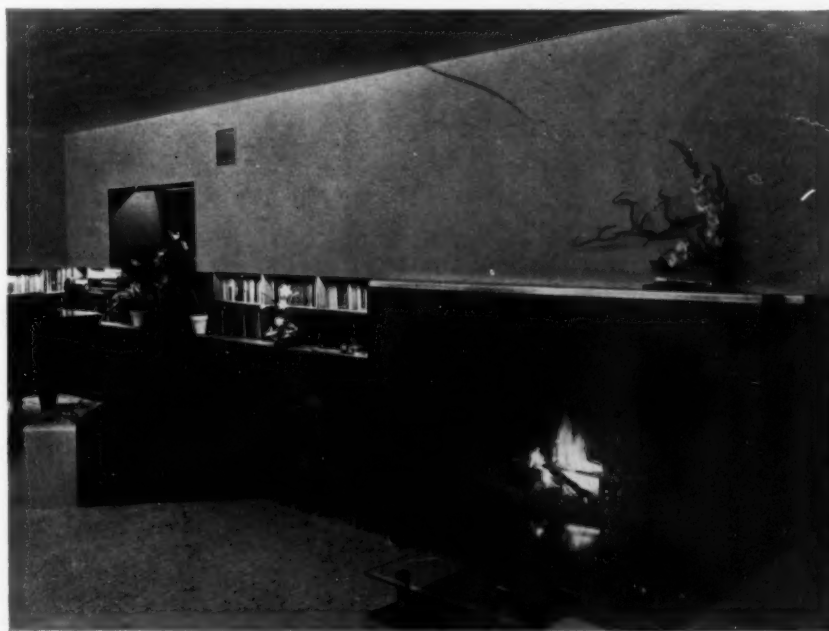


level, the entire landscape is still framed by a dark solid green wall made of oaks and pines. In that glade, and in a rocky land, dogwoods have grown naturally under the protection of old cedar trees, as if they were conscious of the beauty of their blooms against the dark background of the cedars.

After that example of nature's own polychromy, somehow one feels sorry not to have mentioned earlier the great part polychromy is playing in the house. A careful selection of hue, value, and intensity of colors allows the forms (wall, floors, ceilings, and furnishings) to give space its high value. Color contributes greatly to the pleasant illumination by natural and artificial light. The changing of hue, value, or intensity from one wall to another, from one texture to another, lightens whatever massive effect partitions may give. The proper selection of color added to the reasonable glass area of the openings gives a very pleasant illumination by natural light without the usual blinding contrast between walls and windows.

The illumination of the house

"A careful selection of hue, value, and intensity of color allows the forms (wall, floors, ceilings, and furnishings) to give space its high value. Color contributes greatly to the pleasant illumination by natural and artificial light . . . The soft, uniform value of indirect artificial light . . . gives the most delicate tonalities a chance to show up, and there is no powerful and direct source of light to disturb the harmony."



The massive, simple fireplace is done in quarried stone with aluminum mantel

Samuel H. Gottscho



Corner fireplace in the master's suite



Built-in desk, dressing table and cabinets



Bedroom corner window for views and ventilation

by artificial light is particularly successful at twilight when natural and artificial light unify inside and outside illumination. Then nature and architecture acquire a translucent quality. That twilight illumination further reinforces the communion between inside and outside space, between man and nature. The soft, uniform value of indirect artificial light and indirect natural light gives the most delicate tonalities a chance to show up, and there is no powerful and direct source of light to disturb the harmony. Even the candles on the dining room table (a concession to transition between Colonial times and the house of today) can be disturbing to the eye if the value of the flame is not attenuated by the accompaniment of discreet indirect lighting. In this house, light, illumination, and architecture are playing their parts in the prelude of the 24-hour architecture of tomorrow.

In the past, architectural forms were conceived to control daytime illumination. Architecture was essentially diurnal. Today, architecture has a night life and we have already achieved elements of nocturnal architecture, but examples of 24-hour architecture or architectural forms designed for day and night illumination were amazingly rare even in that vast experimental ground, the New York World's Fair of 1939.

Space has reached great value in past architecture, but with the application of science to new types of aesthetic expression, and by the new art forms generated by new techniques, architectural space will acquire higher physical, mental, and spiritual value than ever before—a bright future for architecture.

A visit to the Holden house will convince anyone of the clients' correct point of view in asking for space and more space in the smallest volume of construction. The architect, the decorator, and the landscape architect gave them what they desired, a space necessary and agreeable to live in. Here space was not the mere consequence of an investment in construction and facades; space was the main reason for the investment—a good one.

Samuel H. Gottscho



U. S. Dept., Bureau of the Public Health Service



PUBLIC HEALTH CENTERS

DESIGN FOR DEMOCRACY—design to serve the people's needs—will undoubtedly be one of the major activities when the challenge of constructing the peace replaces the present destruction of war. Health centers, the subject of this study, are cornerstones in the structure of an economy which proposes to eliminate want and fear and promote the welfare of all men everywhere. In setting up the performance and design standards which are presented and analyzed on the pages following, the United States Public Health Service makes a contribution of dual significance to the building designer: a vital element is added to the emerging pattern of the post-war democratic planning field in which he may function; a mass of integrated, factual reference data on health-center

needs is assembled whereby architects—both now and in the future—can more intelligently apply their efforts to the attainment of desired ends. In sending out these basic plans to communities contemplating construction of a health center, the USPHS points out that because of varying local problems, the four types meet general rather than specific requirements and may well need revisions to serve particular programs. Specifically the Service warns that "in no case are they to supplant the complete working drawings and specifications which should be prepared by your local architect." Hence, this study is also an illuminating indication of how a public agency and private practitioners can work together toward a mutual long-range goal of building better for a better world.

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NO. 67

STATEMENT BY THE SURGEON GENERAL

THE LAST 25 YEARS have witnessed remarkable progress in both the extent and the level of public health organization in the United States.

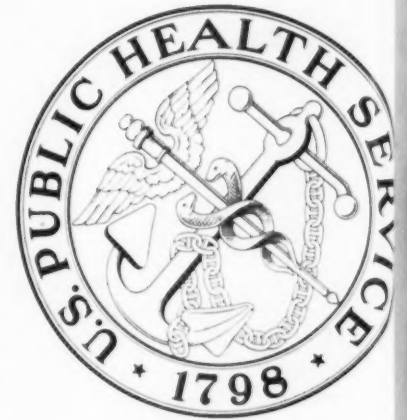
Particularly significant has been the growth of a large corps of professional public health personnel. While great emphasis has properly been placed on the quality and training of these individuals, little attention has been given to the physical surroundings in which they do their work. With few exceptions, local health departments are housed in quarters altogether unsuited to their needs.

Health officers themselves often adopt a fatalistic attitude on this score. Some of them even profess a sort of Spartan indifference, contending that a resourceful and energetic health unit will do effective work regardless of the quarters or furnishings provided. This may have been true in former days when the health department's chief and almost sole function was to lay down the law to recalcitrant violators of sanitary regulations. Today, however, the situation is quite different.

The modern health department carries on a wide range of activities. It employs several classes of personnel, each with a special set of skills. It utilizes technical procedures requiring elaborate equipment and often a high degree of precision. Finally, through direct services, it comes in close contact with many of the people in the community. Poorly ordered or slovenly surroundings are ill adapted for education in either personal or civic hygiene.

An effective health unit deserves and *requires* a suitable headquarters. No one familiar with prevailing conditions of health department housing can fail to be impressed with the thwarting influence these conditions have on efficiency and accomplishment. If the material here presented serves to arouse health authorities and other civic officials, as well as architects and builders, to the urgent need for well-planned health centers, it will do much to advance the cause of public health in this country.

THOMAS PARRAN, *Surgeon General, U. S. Public Health Service*



HOUSING OF HEALTH DEPARTMENTS

by JOSEPH W. MOUNTIN
Assistant Surgeon General
U. S. Public Health Service

AS CHIEF of the States Relations Division of the United States Public Health Service, it is my duty as well as my privilege to visit many local health departments throughout the country. It is gratifying to be able to report that the zeal and devotion to duty frequently displayed by the guardians of community health cannot be too highly praised.

There is, however, one circumstance which never fails to astonish and depress me whenever I undertake a trip into the field—that is the unsuitable and often deplorable condition of the quarters in which many local health departments are housed.

Upon entering a community, I proceed directly to the basement of the city hall, or to the basement of the courthouse if the visit is being made to a county health department. This is done with reasonable assurance that the health department will be found there. Occasionally my assumption will be wrong—it will be in the attic instead of in the basement. If it is not in either place I am at a loss, because more likely than not it is situated in some out-of-the-way alley. Extended inquiries may be necessary to find someone who will attempt to direct me.

In one of the larger cities of the South the health unit is housed in an ancient structure formerly used as a school. The building is regarded as a fine old antique, and so, apparently, is the health department. When the school authorities abandoned the building because it was so old and dilapidated, it was placed at the disposal of the health department. No questions were asked regarding its suit-

ability. Indeed, general opinion held that the department was now most bountifully provided for. It had an entire building for itself—almost unheard-of fortune!

Lacking regular equipment, the health officer put his inventive talents to work and fashioned a remarkable collection of gadgets, devised, it would seem, from the concepts of a well-known cartoonist.

In another community the health unit is lodged in the courthouse basement together with the county jail and the only public toilet facilities in the city. This town is now a haven for thousands of soldiers on leave and it is impossible to keep the basement orderly and clean. A dark and dreary clinic waiting room, fitted with old theater seats, is flanked by the cells in which prisoners are kept.

Such pillar-to-post treatment has been the lot of many local health units. There is a health department which uses the jury room of the courthouse. When a jury files in to deliberate, the health department simply stops whatever it is doing and gets out.

It is not pleasant to dwell on scenes such as these. But I have purposely done so to emphasize one fact: *The imagination can scarcely conceive of conditions worse than those found in the headquarters of the very agencies which ought to set an example of civic cleanliness and decency.* It should be pointed out that the health departments whose quarters are described above are full-time, professionally staffed organizations, not part-time units from which a certain amount of laxity might be expected.

The widespread establishment of full-time official local

health agencies in the United States is a comparatively recent development. Between 1915 and 1935, the number of counties served by full-time professionally staffed health units increased from 14 to 762. After 1935, when Federal grants-in-aid for development and maintenance of State and local public health services became available under the provisions of the Social Security Act, the number of full-time units increased more rapidly. On June 30, 1941, full-time service was being provided to 1,669 counties, or approximately 54 per cent of the counties of the United States. In addition, 103 cities had full-time municipal health departments. The combined population of the 1,669 counties and 103 cities represented approximately 70 per cent of the total population of the continental United States. Since June 30, 1941, more than 100 other counties have been provided with full-time service.

What is needed to correct the present disgraceful state of health department housing? The answer usually given is "money." Yet this is not the whole truth; there are certain fundamentals even more pertinent.

Many local health departments have too narrow a conception of their functions and duties. They routinely perform the old-line tasks such as inspection, abatement of nuisances, enforcement of quarantine, and other activities handed down from the early days of public health organization. If this is all a health department is prepared to do, a little desk space is all it needs, and the location of such desk space is not a matter of great importance. On the other hand, if a health department is concerned with the total health problem of the community and is actually doing something about it—if it is operating clinics, maintaining nursing services, giving real protection with regard to water, milk, and food, assisting in civilian defense, and carrying on a health education program which reaches the people—then it has a right to expect consideration from the community. Moreover, it usually gets it.

Usually—but not always. This brings us to the second point: commanding the respect of the public. A health department may actually be making a heroic effort to provide a complete set of modern services. Nevertheless, if it is miserably housed and equipped, if it is relegated to a dark basement or drafty auditorium, then it is not only hindered in the performance of its work but it fails to get the respect its efforts should command. Unstinting public support is engendered not only by recognition of services performed, but by the manner in which they are performed. Call this salesmanship, or even showmanship, but the truth is that it builds respect and recognition. The end result is that the health department is better able to discharge its obligation to the community.

Financial support for a local health department, however, need not come entirely from local sources. Since 1935 the Federal Government has encouraged the development and maintenance of local

health agencies by means of substantial grants-in-aid to the States through the Public Health Service. Moreover, prior to the present emergency, the construction of health centers was possible through the Work Projects Administration and grants and loans administered by the Public Works Administration. Local health agencies largely neglected to take advantage of this aid, and now the opportunity has been lost. Here again, lack of prestige in the community was undoubtedly reflected. In applying for grants, officials were reluctant to consider the plight of that step-child in the official family—the health department.

In the summer of 1941, Congress appropriated \$150,000,000 to the Federal Works Agency for defense public works, including health centers. Applications for many more projects than could be undertaken with this sum were quickly submitted, but of the 3,725 applications received prior to January 31, 1942, only 157 were for health centers and clinics. In January, 1942, an additional sum of \$150,000,000 in Federal funds was made available for the provision of community facilities vital to the war effort. By May 2, 1942, health center projects in 92 communities, involving a total estimated cost of approximately \$4,850,000, had been approved by the President. Construction on many of these health centers is now going forward under the supervision of the Public Buildings Administration.

The construction of new buildings, even as defense projects, will undoubtedly be difficult, and in some instances impossible, for some time to come. Materials will be under priority restrictions and labor will be scarce.

The next great opportunity for the construction of health centers on a large scale may come after the war is over. It is generally believed that a comprehensive public works program will be necessary in the post-war era to absorb the shock of anticipated unemployment. A "public works reserve" is being developed by the Federal Works Agency and the National Resources Planning Board. These agencies are now surveying communities and preparing lists of suitable projects.

If local health departments wish to benefit from this contemplated program they should begin now to consider their needs and problems, and to prepare the ground for suitable action.

Any health center constructed now or in the future should be planned so as to conform to the conceptions of what a modern health center should be. A properly administered health department, housed in headquarters such as those indicated by the type plans which follow, will be a vital force in the community. It will establish itself in the people's hearts and minds as the focal point from which community health activities proceed. Under such circumstances, the health center becomes in fact what in theory it should be—a worthy monument to the science which combats human illness and promotes longer, happier, and more useful living.

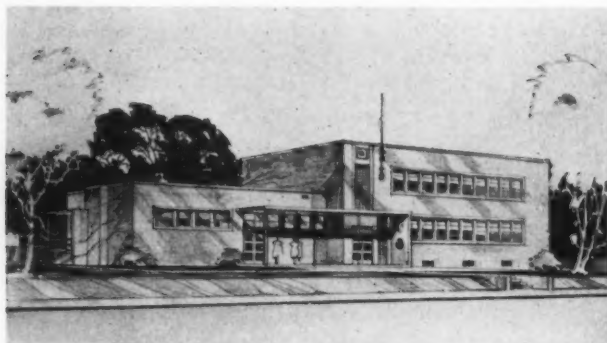
CREDITS AND ACKNOWLEDGMENTS

This study was prepared by the following members of the Hospital Facilities Section of the States Relations Division, United States Public Health Service: V. M. Hoge, Surgeon (in charge of Section); I. Oscar Weissman, Passed Assistant Surgeon (R); Marshall Shaffer, Chief Architect; August Frederick Hoenack, Associate Architect; George Ivanick, Associate Architect; Arthur Wareham, Associate Architect; Neil F. MacDonald, Senior Hospital Consultant; Henrietta Miller, Associate Hospital Consultant. Editorial work was done by Carl Malmberg, Associate Information Specialist.

Acknowledgment is gratefully made to the following: Passed Assistant Surgeons Herman E. Hilleboe, Noka B. Hon, and Walter J. Pelton of the United States Public Health Service for advice regarding tuberculosis clinics, venereal disease clinics, and dental hygiene clinics, respectively; the Sanitation Section, States Relations Division, United States Public Health Service, for assistance in preparing the material dealing with sanitation and laboratory services; the Children's Bureau, United States Department of Labor, for suggestions with regard to maternal and child health services; Miss Mildred E. Negus of the District of Columbia Southwestern Health Center for advice concerning administration and operation of health centers; and Mr. J. E. Watkins for advice on X-ray equipment.

DEVELOPMENT OF THE MODERN HEALTH CENTER

HEALTH CENTER PROGRESS



ANNISTON, ALA. Chas. H. McCauley, Architect (PBA)



FORT SMITH, ARK. E. Chester Nelson, Architect (PBA)



STARKE, FLA. Health and Medical Center (FWA)



WOODVILLE, CALIF. FSA, District 6, San Francisco

THE TERMS "health center" or "health clinic" have been applied indiscriminately to many types of structures, including corner stores remodeled to serve as well-baby stations, settlement houses, community and recreational centers, individual or group medical offices and industrial clinics, and large, specially designed hospitals and medical centers. This confusion in terminology is symptomatic of the many-sided efforts, chiefly non-official, which in the past have been characteristic of health work.

Early "health centers," mainly reconstructed residences or stores, were an outgrowth of welfare or settlement house work^{1*} and subsequently of the district or visiting nurse movement.² Another influence was the establishment of clinics by voluntary agencies concerned with special health activities such as infant care or tuberculosis control. A later step in the evolution of the health center was the attempt to gather together in one building a number of agencies concerned with various health or related social service problems, in order to provide some center in which neighborhood activities could be coordinated.

An obvious reason why welfare agencies were the first to become interested in "health centers" was the relationship between disease and poverty. Another reason, however, was that official health departments had not yet come of age and were still concerned almost exclusively with elementary functions of sanitation and the nuisance abatement required by law.

As the functions of official health agencies expanded in accordance with the broadening concept of public health, the main impetus to health center construction came to be the growth and development of official health departments. One major influence was the establishment of the district form of health administration^{2,3} in large and populous health jurisdictions such as New York City,⁴ Boston,⁵ and Los Angeles.⁶ The excessive size of these jurisdictions, as well as the development of activities dependent for their success in large measure upon the understanding and participation of the individual beneficiary, made evident the desirability of decentralization, localization, and the correlation of services to the particular needs of the community. More or less homogeneous districts were therefore laid out, and health centers were constructed to house under official auspices all local health activities.

The district type of health center has been developed primarily in metropolitan communities, and it differs in several respects from the type health centers described in this presentation. First, since the district is a subdivision of a larger jurisdiction, provision is not made in the district center for certain activities such as vital statistics, sanitary engineering, and laboratory services, which are provided and administered from the central office. Secondly, the district center usually continues the settlement house tradition in that it provides space for allied agencies, notably welfare organizations. In some instances provision is made for nurseries and instructive activities.⁵

A more important influence, at least in its effect on the smaller health departments in the United States, and therefore on the over-all health organization of the country as

* Key numbers throughout refer to items in Bibliography, page 78.

developed with Federal assistance under provisions of the Social Security Act, has been the construction of health centers for rural, semi-rural, and small city health departments by various philanthropic foundations. While such centers have been built with private funds, they have been constructed specifically for use by official health departments. They differ from the district type of health center in that they constitute the only center in an area, and include provision for all the basic functions of the health department. Examples of such centers are those constructed in Massachusetts, Mississippi, and Tennessee by the Commonwealth Fund.⁹

A development which is similar in some respects has occurred in Michigan where the Kellogg Foundation,⁹ as part of its county health department demonstrations, has constructed what are called "community health centers." Strictly speaking, these are small hospitals which incorporate provisions for certain health department functions such as laboratory and home nursing services. In reality, a small part of a health center is added to a hospital. The obverse of this is demonstrated in Los Angeles⁹ where a small emergency hospital of a few beds has been added to the district health center. These are interesting developments with possible significance for the future. The transformation of hospitals from the pest-houses of former years into institutions regarded by the public as modern centers of health and medical activity has led to increasing discussions of the hospital's educational potentialities and of the possible advantages to be achieved by combining health centers and hospitals. Such combination avoids duplication of certain clinical facilities necessary to both health department and hospital and increases the possibility for continuity of medical care.

A recent development which may be mentioned briefly is the organization of health centers or clinics in public housing projects. Some centers have been established in large urban projects of the "slum clearance" type. Within the last year others have been organized to serve the tenants of defense housing projects in military or war-industry communities. Since many of the latter type of projects have necessarily been located in sparsely settled areas without access to medical or hospital services, wartime housing authorities have in some instances had to provide health facilities for the tenants whose physical well-being is of vital importance in the war effort. When this has been done, it has been accomplished in one of three ways: (1) One or more dwelling units have been converted into a health center; (2) space has been set aside in the administration or community building; (3) a building has been provided specifically for a health center and clinic.

In concluding this brief outline of the historical background of health centers, it may be well merely to mention the English experience.^{7,12} In England the initial impetus also came from welfare work, chiefly with children. Even at the present time there is a marked tendency toward the association of health centers with nurseries and recreational facilities.^{10,11}

Having touched on past influences determining the association of health services with other types of activities, the term "health center" will hereafter be confined to a structure designed primarily as the home of the official health agency.

The building must provide the administrative, technical, and educational facilities necessary in carrying on



the functions of a local health department. Some of these functions are basic, well defined, and part of standard practice. Others are newer or even experimental, and are not yet accepted as functions by all health departments. The activities of any given health department will depend on such factors as the special problems of the area, the length of time a program has been in effect, the funds and personnel available, the existence of other voluntary and official agencies interested in various phases of health work, and the relationships of the health department to such agencies and to the organized professions. Nevertheless, certain functions and activities are accepted as basic.

These basic functions may be enumerated as follows: Administration, control of sanitation, control of communicable disease, public health nursing service, individual health protection and promotion through provision of certain direct services, and public health education.^{3,4}

Administration includes the ordinary business routines of any office as well as the specialized bookkeeping on health which involves the collection and tabulation of vital statistics and the recording of technical activities.

Control of sanitation includes: (1) Supervision of private and public water supplies, sewerage, excreta disposal, as well as heating, lighting, and ventilation of public buildings; (2) supervision of the quality of the milk supply, including examination of milk and milk product samples; (3) control of the hygienic conditions in food handling and processing establishments, including inspection of abattoirs, markets, bakeries, and shellfisheries or shellfish packing plants; (4) supervision of eating and drinking establishments; (5) establishment of satisfactory working conditions in industrial plants (often done by the State health department rather than by the local unit); (6) control of mosquitoes, flies, rodents, and other vermin; (7) sanitary supervision of recreational facilities such as tourist camps, parks, and bathing places; (8) licensing of barber shops, beauty parlors, and boarding houses.

Although some of the above functions may be performed by other official agencies in the community, the health department must keep informed constantly concerning all matters which have a bearing on the health of the community. To this end, conferences with other agencies and reporting to the health department by agencies with health-connected functions will be necessary.

Communicable disease control requires diagnostic lab-

oratory facilities, clinical facilities for immunization, and refrigerated storage for vaccines and sera. Tuberculosis and venereal disease control usually constitutes a major part of the activity. In the larger centers a separate tuberculosis clinic is usually provided, with special X-ray and pneumothorax equipment. The elaborate irrigating and plumbing equipment formerly needed in venereal disease clinics can be dispensed with now that newer and simpler chemotherapeutic methods are used.

No class of personnel plays a more important role in the public health program than the nurses. Nurses constitute a majority of the staff and account for the largest part of the budget. They participate in every type of activity and have the most frequent and intimate contact with the public. Yet, they are almost always the last group to be considered in working out the physical arrangement of a health department. Special attention should be devoted to planning clinic facilities for smooth flow of traffic and minimum lost time and energy for the nurses.

Although the health department's primary task is overall stewardship of community health through the prevention of disease, it is now generally accepted that in the case of certain diseases, certain age groups, and certain economic groups, some curative services must be provided. There is no dichotomy between prevention and cure of such diseases as tuberculosis and syphilis, and, therefore, curative clinical facilities are provided for victims of these afflictions. Direct service, through child-health conferences and pre-natal and post-partum clinics, is also rendered to children and pregnant women, especially to those who cannot secure such services through their own resources.

Thus, special clinical facilities and equipment for maternal and child hygiene and children's dentistry are necessary in most instances. The maternal and child health clinic should be designed primarily as a demonstration room for educational use, and should be furnished for children as well as mothers. In some instances special facilities for mental hygiene, nutrition instruction, and medical social service may be provided.

Public health education is the function which rivets together all the various activities of a health program and translates them into terms readily understood and appreciated by those for whose benefit the program is devised. Health education, therefore, should be introduced into as

many aspects of the health center as possible. Panels, murals, and posters should be incorporated into the scheme of the waiting rooms and all other parts of the building to which the public has access. Provision should be made for attractive display of printed matter for free distribution. Movable displays may be provided for use in particular clinics. There should be an auditorium or assembly room for public meetings, lectures, motion pictures, conferences, or medical society meetings. A library-conference room is desirable in a larger center.

From the foregoing, it will be seen that the health center comprises three major areas: Public, administrative, and clinical. All these should be designed so as to insure a harmonious working relationship with a maximum of efficiency and a minimum of traffic and overlapping.

Lack of expert planning, with consequent detriment to the quality of service rendered, is evident in many health centers constructed in the past. The planning of health centers involves complex and interrelated considerations of function, form, and engineering. Many architects have not had sufficient opportunities to become fully acquainted with the highly specialized problems in this relatively new field. Physicians or health officers, who are usually consulted by architects, are not, as a rule, sufficiently conversant with the problems of the interrelationship and integration of the various service units, and cannot usually give the comprehensive advice necessary to insure maximum efficiency at minimum expense.

The services of the United States Public Health Service architectural and planning unit, which designed the type health centers shown herein, are available to local health authorities and architects who wish to secure expert advice on hospital or health center design and construction.

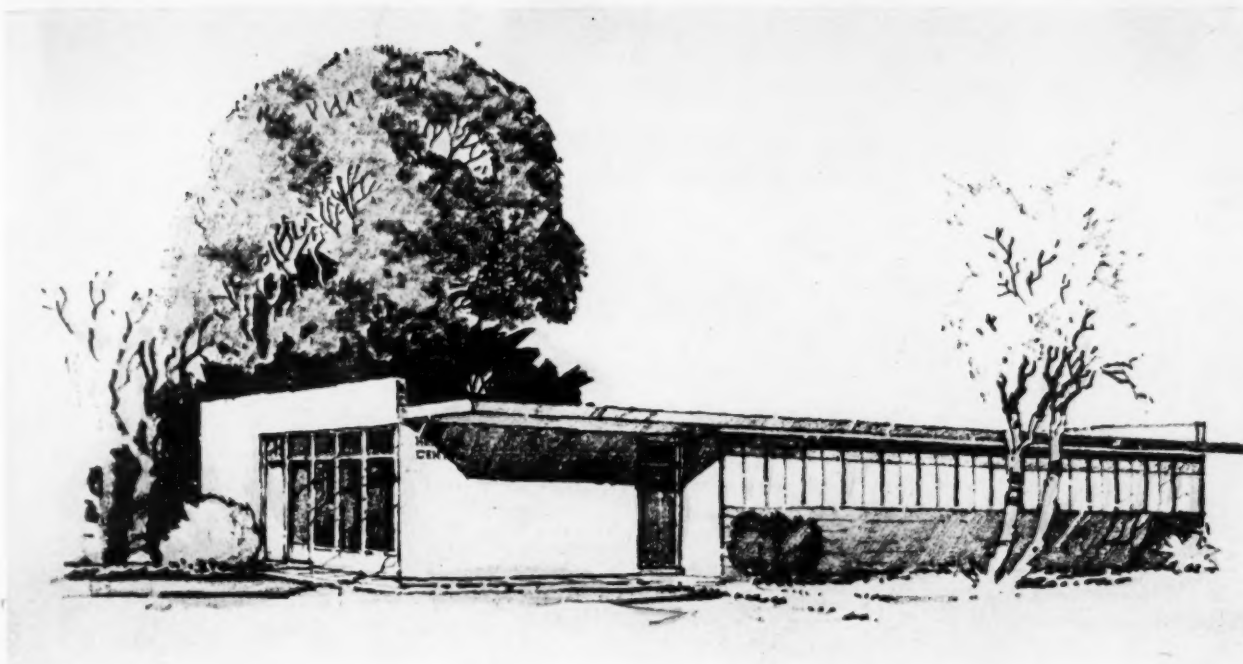
The type health centers described in the following pages have necessarily been designed with general rather than specific requirements in mind. Many of the new health centers to be constructed under the war public works program will have requirements not provided for in the plans here presented; others may not require some of the features which have been included. Nevertheless, on the basis of the accepted functions outlined above, it is believed that these plans embody the principal features which should be incorporated in health centers for communities of the various sizes indicated.

Because of the legal, financial, and material restrictions of the present public works program, no attempt has been made to include in these plans certain facilities indicated by some trends, both past and present. Space for allied welfare or social service agencies, for example, has not been considered. In spite of the obvious debt owed by public health to welfare agencies, continued direct association with them presents certain distinct disadvantages to the health department. Whereas the welfare agency serves a limited clientele, the health department is concerned with the health of all citizens in the community.

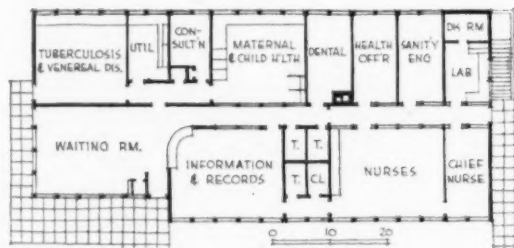
Also omitted from the plans because of present material restrictions is consideration of possible combinations with recreational centers, gymnasias, and nurseries, as well as the possibilities inherent in the association of the health center with the hospital. These possibilities are, however, of great importance to the future development of the health center as a positive factor for community health.



U. S. Public Health Service



TYPE A HEALTH CENTER



DESIGNED for a community with a maximum population of approximately 30,000. A one-story structure with floor area of 2,780 square feet. Clinic section contains two dual purpose clinic rooms (see details, page 74), a consultation room, a utility room, and a dental room. Space for a laboratory has been included, but if laboratory work is to be done off the premises this space may be utilized for X-ray facilities.

The administrative section includes a waiting room, information and record room, a nurses' room, and offices for the health officer, chief nurse, and sanitary engineer.

The basement (not shown) requires only partial excavation. It contains an assembly hall, a boiler and fuel room, a maintenance room, storage space, and a dead record room.

For a community of this size the staff will consist of from 8 to 10 persons, including 1 health officer, a chief nurse, 4 or 5 public health nurses, 1 or 2 sanitary engineers, and 1 clerk. Clinic loads will vary but the center can handle about 8,000 visits per year.

EQUIPMENT LIST FOR TYPE A HEALTH CENTER

X-ray and Dark Room. 1 mobile unit 15 to 30 ma., including cassette box and fluoroscopic attachments; 1 hand fluoroscope; 1 vertical cassette holder (movable); 1 illuminator (fluorescent light); 2 cassettes, 14" x 17"; 2 cassettes, 10" x 12"; 2 cassettes, 8" x 10"; 12 film developing hangers, 14" x 17"; 12 film developing hangers, 10" x 12"; 12 film developing hangers, 8" x 10"; 2 safe lights; 2 floating thermometers; 1 interval timer; 3 storage racks for film hangers; 1 film drier; 1 unexposed film storage bin (lead lined); 1 exposed film storage cabinet (base and drawer); 1 developing, washing, and fixing tank (insulated), 3-gallon solution capacity; 1 refrigerating unit; lead numbering set; lead-impregnated rubber gloves; lead-impregnated rubber apron.

Tuberculosis and Venereal Disease Clinics. 2 examination tables; 2 sanitary sheet apparatus; 2 instrument cabinets; 2 instrument tables; 2 operator's stools; 2 soap dispensers; 2 foot stools; 2 paper

towel cabinets; 2 sanitary waste receptacles; 2 gooseneck examination lamps; 1 instrument sterilizer; 1 small desk; 1 chair; 1 adult scale; 2 costumers; 1 microscope (dark field); 1 microscope (ordinary); 1 pneumothorax apparatus with stand.

Maternal and Child Health Clinic. 1 examination table; 1 sanitary sheet apparatus; 1 instrument cabinet; 1 instrument table; 1 paper towel cabinet; 1 operator's stool; 1 soap dispenser; 1 foot stool; 1 sanitary waste receptacle; 1 gooseneck examination lamp; 1 instrument sterilizer; 1 small desk; 1 demonstration table; 1 infant scale; 1 adult scale; 2 chairs.

Utility Room. 1 hot plate; 1 sanitary waste receptacle; 1 Bunsen burner.

Consultation Room. 1 desk; 3 chairs; 1 filing cabinet; 1 table.

Dental Hygiene Clinic. 1 operating chair; 1 dental unit and motor; 1 instrument cabinet; 1 air compressor (twin cylinder); 1 X-ray machine; miscellaneous in-

struments; 1 paper towel cabinet; 1 soap dispenser; 1 costumer; 1 sanitary waste receptacle.

Health Officer's Office. 1 desk; 3 chairs; 1 filing cabinet; 1 map rack; 1 waste receptacle; 1 costumer.

Sanitary Engineer's Office. 1 desk; 2 chairs; 1 filing cabinet; 1 waste receptacle; 1 costumer.

Laboratory. 1 centrifuge; 1 microscope; 1 refrigerator; 1 incubator; 1 autoclave; 1 stool; 1 hot air sterilizer; 1 set of scales; 1 burette stand; 1 hot plate; 1 Bunsen burner.

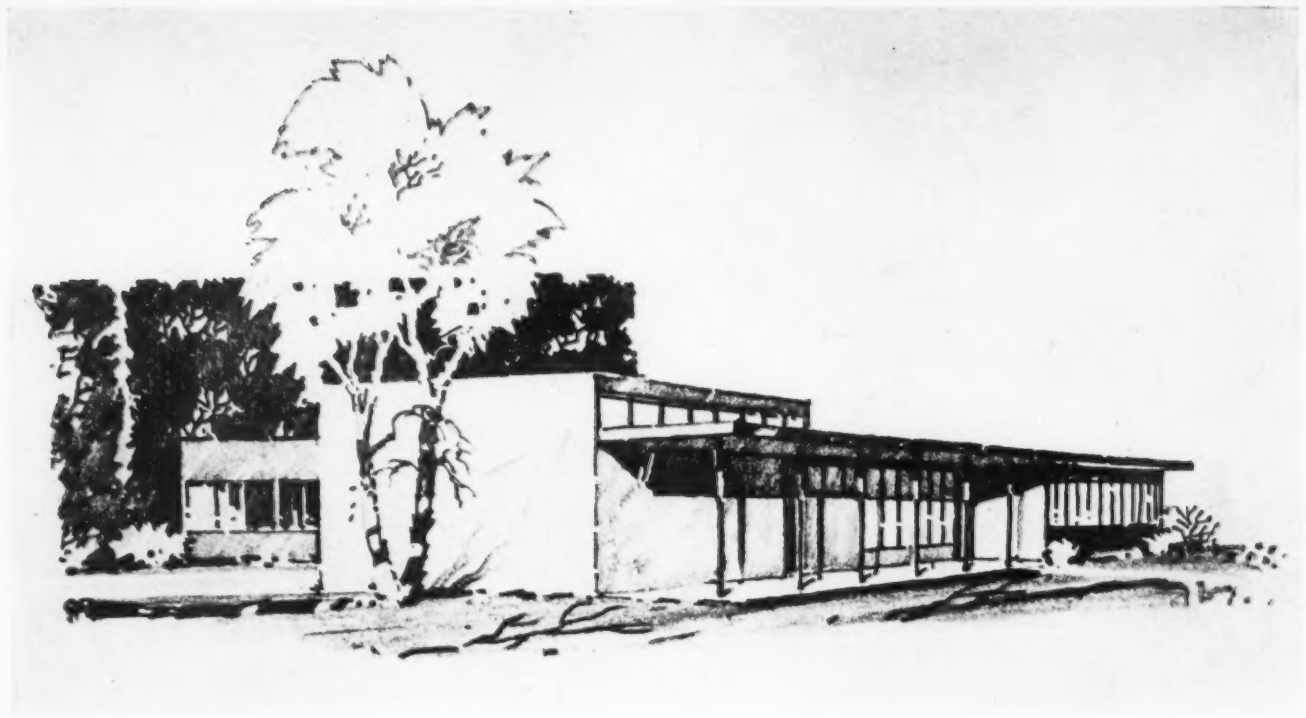
Chief Nurse's Office. 1 desk; 2 chairs; 1 filing cabinet; 1 waste receptacle.

Nurses' Room. 4 desks; 4 chairs; 4 waste receptacles.

Record Room. 1 desk; 2 chairs; 1 typewriter; 5 filing cabinets; 2 waste receptacles; 1 mimeograph machine; 1 costumer.

Waiting Room. 15 chairs (adult); 5 chairs (children); 1 small nursery table; 1 large table.

Auditorium. 60 chairs; 1 table.



TYPE B-1 HEALTH CENTER

FOR A COMMUNITY with a maximum population of approximately 60,000. One story, with floor area of 4,480 square feet. The clinic section contains separate facilities for venereal disease control; tuberculosis control, including X-ray; maternal and child

health service (see details, page 75); dental hygiene; and a pharmacy. The sub-waiting room aids in control of patients.

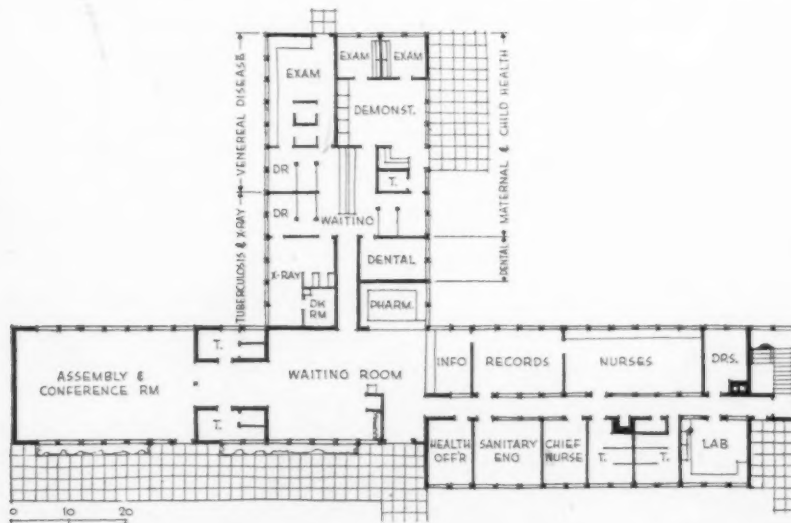
The waiting room opens into the clinical and administrative areas, and the auditorium. The administrative

wing contains the information counter, space for records, a large nurses' room (see details, page 78) with the chief nurse's office conveniently located across the corridor, offices for the health officer and sanitary engineers, a laboratory (see details, page 78) and staff toilets.

An auditorium has been provided for meetings, conferences, educational lectures, and other assemblages.

The basement (not shown) requires only partial excavation. It contains storage space, a dead record room, a maintenance room, and a boiler and fuel room. A stairway from the basement to the exterior is required for removal of ashes and other service operations.

The full-time staff of such a center will consist of from 15 to 21 persons, including 1 health officer, 1 chief nurse, 1 assistant chief nurse, 8 to 12 public health nurses, 2 to 4 sanitary engineers, and 2 clerks. The clinics can accommodate approximately 14,600 patient-visitors per year.



EQUIPMENT LIST FOR TYPE B-1 & B-2 HEALTH CENTERS

Tuberculosis and X-ray Clinic

X-ray Room and Dark Room. 1 200 ma. unit with transfer and control stand; 1 hand fluoroscope; 1 rotating or stationary anode double focus tube; 1 tube stand; 1 side rail unit; 1 mobile unit, 15 ma., with fluoroscopic attachments; 1 cassette holder, wall hung; 1 illuminator (fluorescent light); 2 cassettes, 14" x

17"; 2 cassettes, 10" x 12"; 2 cassettes, 8" x 10"; 12 film developing hangers, 14" x 17"; 12 film developing hangers, 10" x 12"; 12 film developing hangers, 8" x 10"; 1 safe light; 2 floating thermometers; 1 interval timer; 3 storage racks for film hangers; 1 film drier; 1 unexposed film storage bin (lead lined); 1 exposed film storage cabinet (base and

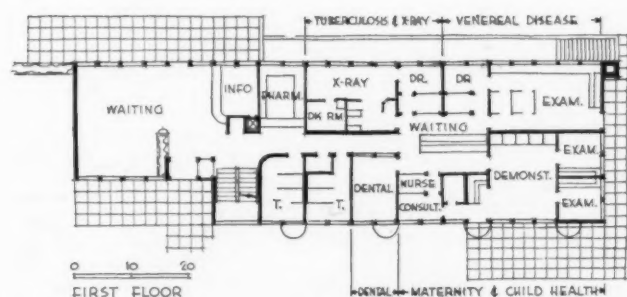
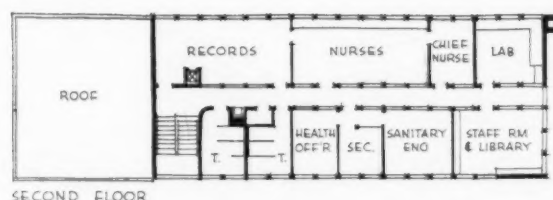
drawer); 1 developing, washing, and fixing tank (insulated), 5-gallon developer and 10-gallon fixer capacity; 1 refrigerating unit; lead numbering set; lead-impregnated rubber gloves; lead-impregnated apron.

Consultation Room. 1 desk; 2 chairs; 1 waste receptacle; 1 pneumothorax apparatus.

TYPE B-2 HEALTH CENTER

The basement contains an assembly room, storage space, a dead record room, a maintenance room, and a boiler and fuel room.

The full-time staff and the clinic load are the same as for the Type B-1 center.



Dental Hygiene Clinic. 1 operating chair; 1 dental unit and motor; 1 instrument cabinet; 1 air compressor; 1 X-ray machine; miscellaneous instruments; laboratory equipment; 1 paper towel cabinet; 1 soap dispenser; 1 sanitary waste receptacle.

Venereal Disease Clinic

Examination Room. 1 examination table; 1 sanitary sheet apparatus; 5 operator's stools; 1 operator's foot stool; 1 microscope (dark field); 1 microscope (ordinary); 3 instrument tables; 3 sanitary waste receptacles; 1 gooseneck examination lamp; 1 sterilizer, 17" x 8" x 6"; 1 paper towel cabinet; 1 soap dispenser.

Consultation Room. 1 desk; 2 chairs; 1 waste receptacle.

Control Nurse's Office. 2 chairs; 1 waste receptacle.

Consultation Room. 1 desk; 2 chairs; 1 waste receptacle. **Control Nurse's Office.** 2 chairs; 1 waste receptacle.

Maternal and Child Health Clinic

Examination Rooms. 2 examination tables; 2 sanitary sheet apparatus; 2 operator's stools; 2 operator's foot stools; 2 sanitary waste receptacles; 2 gooseneck examination lamps; 2 instrument sterilizers; 2 paper towel cabinets; 2 soap dispensers; 2 chairs.

Demonstration Room. 1 demonstration table; 1 sanitary waste receptacle; 10 chairs; 1 children's play table; 4 children's chairs; 1 hot plate; 1 infant scale; 1 adult scale; 1 paper towel cabinet; 1 soap dispenser; 1 microscope; 1 Bunsen burner.

Consultation Room. 1 small desk; 2 chairs; 1 waste receptacle.

Control Nurse's Office. 2 chairs; 1 waste receptacle.

Auditorium. 80 chairs; 1 speaker's table; 1 projection machine.

Waiting Room. 20 chairs; 1 table.

Record Room. 1 small desk; 10 filing cabinets; 2 chairs (typist); 1 desk; 1 typewriter; 1 mimeograph machine; 2 waste receptacles.

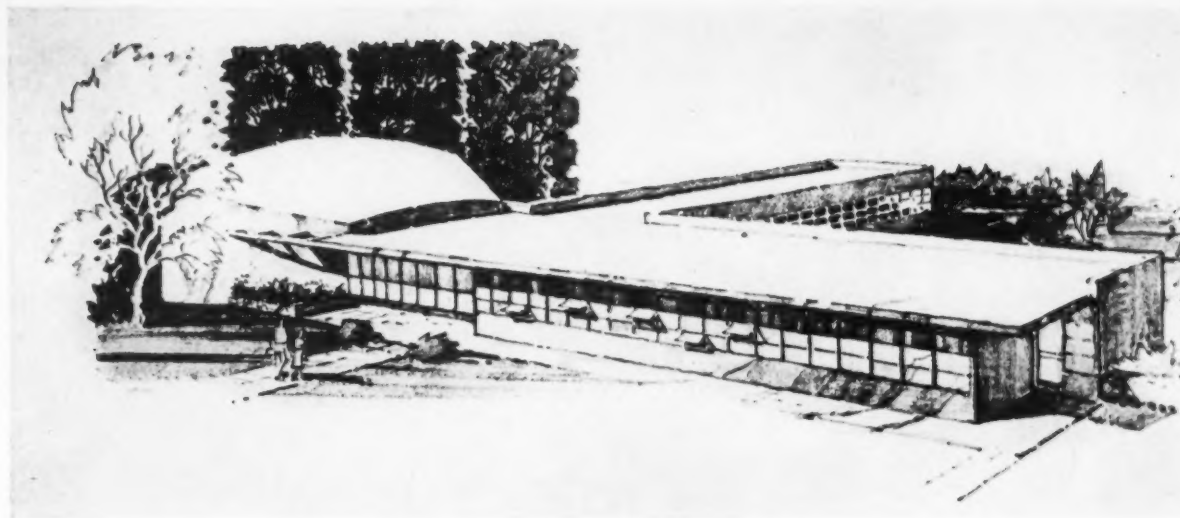
Nurses' Room. 8 desks; 8 chairs; 4 waste receptacles.

Health Officer's Office. 1 chair; 1 desk; 1 filing cabinet; 1 waste receptacle; 1 map rack; 1 costumer.

Sanitarians' Office, 3 desks; 3 chairs; 3 waste receptacles; 1 filing cabinet; 1 drawing table; 1 costumer.

Chief Nurse's Office. 1 desk; 2 chairs; 1 filing cabinet; 1 waste receptacle.

Laboratory. 1 centrifuge; 1 hot air sterilizer; 1 microscope; 1 incubator; 1 refrigerator; 1 autoclave; 1 burette stand; 1 set of scales; 1 desk; 1 hot plate; 1 chair; 1 Bunsen burner; 1 file cabinet; 1 stool.



TYPE C HEALTH CENTER

FOR A COMMUNITY with a maximum population of approximately 100,000. One story, with floor area of 7,380 square feet. The clinical wing contains separate clinics for venereal disease control (see details, page 76), tuberculosis control, including X-ray (see details, page 77), maternal and child health services, and dental hygiene. A pharmacy has also been included. Two sub-waiting rooms aid in control of patients.

The basement extends under only part of the building area. It contains storage space, a dead record room, a maintenance room, and a boiler and fuel room.

The full-time personnel of such a center will consist of from 31 to 35 persons, including 1 health officer, 1 assistant health officer, 1 chief nurse, 2 to 3 assistant chief nurses, 18 public health nurses, 5 to 7 sanitary engineers, and 3 to 4 clerks. The clinics can accommodate about 28,300 patient-visitors per year.

EQUIPMENT LIST FOR TYPE C HEALTH CENTER

Tuberculosis and X-ray Clinic

X-ray and Dark Room. 1 200 ma. X-ray unit with transformer and control stand; 1 rotating or stationary anode double focus tube; 1 stereoscopic tube stand; 1 side rail unit; 1 photo-roentgen unit; 1 orthostereoscope; 1 vertical fluoroscope; 1 illuminator (fluorescent light); 3 cassettes, 14" x 17"; 24 cassettes, 4" x 10"; 12 film developing hangers, 14" x 17"; 12 multiple film developing hangers, 4" x 10"; 1 safe light; 2 floating thermometers; 1 interval timer; 2 storage racks for film hangers; 1 film drier; 1 unexposed film storage bin (lead lined); 1 exposed film storage cabinet (base and drawer); 1 developing, washing, and fixing tank (insulated), 5-gallon developer and 10-gallon fixer capacity; 1 refrigerating unit; lead numbering set; lead-impregnated gloves; lead-impregnated apron.

Fluoroscopy and Pneumothorax Room.

1 pneumothorax table with rollers; 1 sanitary sheet apparatus; 1 gooseneck examination lamp; 2 instrument tables; 2 operator's stools; 1 pneumothorax apparatus with stand; 1 operator's foot stool; 1 sanitary waste receptacle; 1 instrument sterilizer, 17" x 8" x 6"; 1 paper towel cabinet; 1 soap dispenser; 1 two-basin solution stand.

Consultation Room. 1 desk; 2 chairs; 1 waste receptacle; 1 adult scale.

Control Nurse's Office. 2 chairs; 1 waste receptacle.

Dental Hygiene Clinic. 2 operating chairs; 1 dental unit and motor; 1 instrument cabinet; 1 air compressor; 1 X-ray equipment; miscellaneous instruments; laboratory equipment; 1 sanitary waste receptacle; 1 soap dispenser; 1 paper towel cabinet.

Recovery Room. 1 cot and mattress.

Venereal Disease Clinic

Examination and Treatment Rooms. 2 examination tables; 2 sanitary sheet apparatus; 2 gooseneck lamps; 2 instrument tables; 2 operator's stools; 2 operator's foot stools; 2 sanitary waste receptacles; 1 instrument sterilizer, wall hung, 17" x 8" x 6"; 2 paper towel cabinets; 2 soap dispensers.

Laboratory. 1 microscope (dark field); 1 microscope (ordinary); 1 stool.

Consultation Room. 1 desk; 2 chairs; 1 waste receptacle.

Control Nurse's Office. 2 chairs; 1 waste receptacle.

Arsenical Injection Room. 4 operator's stools; 2 instrument tables; 1 instrument sterilizer, 17" x 8" x 6"; 1 sanitary waste receptacle; 1 paper towel cabinet; 1 soap dispenser.

Bismuth Injection Room. 1 examining table; 1 sanitary sheet apparatus; 1 instrument table; 1 operator's stool; 1 operator's foot stool; 1 gooseneck examination lamp; 1 sanitary waste receptacle.

Maternal and Child Health Clinic

Examination Rooms. 2 examination tables; 2 sanitary sheet apparatus; 2 operator's stools; 2 operator's foot stools; 2 sanitary waste cans; 2 gooseneck examination lamps; 2 instrument sterilizers, 17" x 8" x 6"; 2 paper towel cabinets; 2 soap dispensers; 2 chairs.

Demonstration Room. 1 demonstration table; 1 sanitary waste receptacle; 11 chairs; 1 hot plate; 1 infant scale; 1 adult scale; 1 paper towel cabinet; 1 soap dispenser; 1 microscope; 1 Bunsen burner.

Consultation Room. 1 desk; 2 chairs; 1 waste receptacle.

Control Nurse's Office. 2 chairs; 1 waste receptacle.

Auditorium. 160 chairs; 1 speaker's table; 1 projection machine.

Waiting Room. 30 chairs; 8 chairs (children); 1 nursery table.

Record Room. 2 desks; 1 desk (small); 3 chairs; 2 typewriters; 1 mimeograph machine; 3 waste receptacles; 15 filing cabinets.

Nurses' Room. 20 desks; 20 chairs; 10 waste receptacles.

Chief Nurse's Office. 1 desk; 1 chair; 1 filing cabinet; 1 waste receptacle.

Laboratory. 1 centrifuge; 1 hot air sterilizer; 1 microscope; 1 incubator; 1 refrigerator; 1 autoclave; 1 burette stand; 1 set of scales; 1 desk; 1 chair; 1 Bunsen burner; 1 file cabinet; 1 stool; 1 hot plate.

Sanitarians' Office. 5 desks; 5 chairs; 3 waste receptacles; 2 filing cabinets; 1 drawing table.

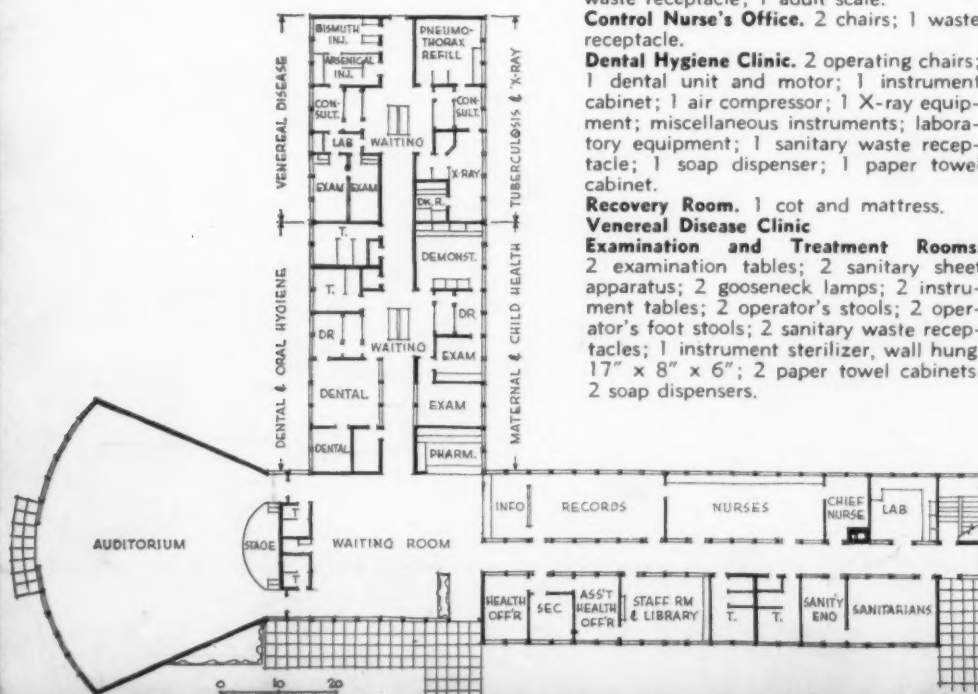
Sanitary Engineer's Office. 1 desk; 1 chair; 1 waste receptacle.

Staff Room and Library. 1 conference table (8'); 8 chairs.

Assistant Health Officer's Office. 1 desk; 1 chair; 1 waste receptacle.

Secretary's Office. 1 desk; 1 chair (typist); 1 waste receptacle; 1 typewriter; 1 filing cabinet.

Health Officer's Office. 1 map rack; 1 desk; 1 chair; 1 waste receptacle.



HEALTH CENTER DESIGN DATA 1-CLINIC LOADS AND SCHEDULES

ARCHITECTURAL RECORD
TIME-SAVER
STANDARDS
JULY, 1942

CLINIC LOADS

IN DETERMINING space requirements for the various type health centers here presented, an approximate clinic schedule and personnel list for each type was first prepared.

The case loads have been drawn up in accordance with standard practice* wherever possible. With regard to certain services such as dental hygiene and venereal disease control which are subject to considerable variations in different communities, it is not possible to set up satisfactory standards which may be followed universally. In such cases it is necessary to confer with local health officials.

Maximum rather than minimum standards should be utilized in determining case loads, since activities are likely to expand rather than contract.

Standard practice requires that administrative and office space be provided on the basis of 1 or 2 health officers and 1 chief nurse to a center, 1 nurse to each 5,000 population (approximate), and 1 sanitarian to each 15,000 to 20,000 population.**

The following examples illustrate the methods used to arrive at an approximate estimate of the clinic loads for the Type A health center (page 69) which was designed for a community of 30,000 maximum population.

PRE-NATAL CLINIC

Number of expected births annually (based on a population of 30,000 with an average normal birth rate of 18 per 1,000).	540
Number of mothers expected to attend clinic (based on expected attendance of 33 per cent).	180

* See Bibliography, page 78; Nos. 4 and 13.
** See Bibliography, page 78; Nos. 3 and 4.

Total number of clinic visits annually (based on 6 visits per mother).	1,080
Average number of clinic visits per week	20+
Number of patients who can be accommodated at each clinic session.	10
Number of sessions required per week	2

CHILD HEALTH CLINIC

Total number of children under 5 years of age in 30,000 population (based on normal annual birth rate of 18 per 1,000 population)	2,700
Number of children expected to attend clinic (based on an expected attendance of 50 per cent).	675
Total number of clinic visits annually (based on 4 visits per child).	2,025
Average number of clinic visits per week	40
Number of children who can be accommodated at each clinic session	20
Number of sessions required per week	2

TUBERCULOSIS AND X-RAY CLINIC

Number of expected deaths from tuberculosis annually (based on a population of 30,000 and a tuberculosis death rate of 50 per 100,000).	15
Number of registered tuberculosis patients annually (standard practice requires that 5 known cases be under treatment for each tuberculosis death).	75
Total number of clinic visits annually (based on 4 visits per patient).	300
Approximate number of clinic visits per month	25
Number of patients to be accommodated at each clinic session.	4
Number of sessions required per month.	6***

VENEREAL DISEASE CLINIC

The venereal disease clinic load is governed by a number of factors which make it impossible to apply general standards except with regard to the

*** Two of the sessions should be held in the evening to accommodate persons who work in the daytime.

number of visits required to control infection and provide recommended minimum treatment to each registered case. The rate of incidence, the percentage of infected individuals who report at the clinic, and the number of cases under treatment by private physicians will vary considerably in different communities. All of these factors will affect the number of cases treated.

The recommended number of clinic visits for each case is: 48 for syphilis, 4 for gonorrhea, and 10 for other venereal diseases.

Assuming that for each 1,000 population there will be 7.5 cases of venereal disease, of which 70 per cent will be syphilis, 25 per cent gonorrhea, and 5 per cent other venereal infections, then:	
Number of venereal cases annually (based on a population of 30,000 with a rate of 7.5 per thousand).	225
Number of annual treatments	7,900
Average number of clinic visits per week	150+
Number of cases who can be accommodated at each clinic session.	50
Number of sessions required per week	3

DENTAL HYGIENE CLINIC

Since nearly everyone suffers from dental diseases, the dental load may be regarded as that proportion of the community which is eligible for treatment in a health department clinic.

In the past, dental clinics in health departments included facilities for prenatal maternal care, and care of pre-school and certain elementary school children. At the present time, many health departments are improving and extending dental services to include venereal disease and tuberculosis patients. Greater utilization of dental facilities may be expected as a result of the need for dental care among high-school students and youths of pre-draft age.

Determination of exact requirements of the dental clinic will, therefore, largely depend upon local circumstances and the dental program contemplated by the health authority of the community.

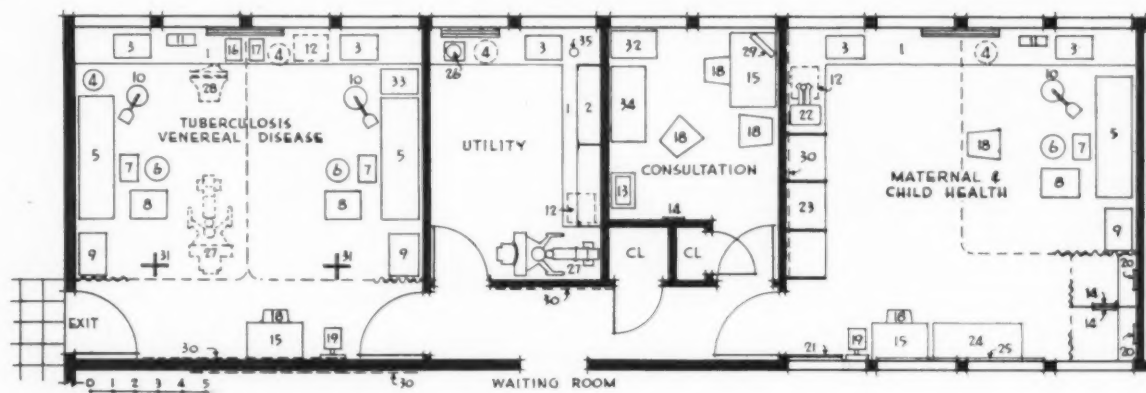
† The rate of handling venereal disease patients varies but an adequate staff, properly trained and experienced, will handle about 50 patients per two-hour session with facilities of the type provided in the Type A, Type B-1 and Type B-2 centers. The Type C clinic (see details, page 76) will handle 75 cases a session.

POSSIBLE CLINIC-USE SCHEDULES based on analyses of clinic loads

TYPE A HEALTH CENTER				TYPE B-1 & B-2 HEALTH CENTERS				TYPE C HEALTH CENTER			
Day	Session	Clinic	Visits	Day	Session	Clinic	Visits	Day	Session	Clinic	Visits
Mon.	A.M.	None	None	Mon.	A.M.	Tuberculosis	8	Mon.	A.M.	Dental	20
	P.M.	Child health	20		P.M.	Child health	26		A.M.	Child health	32
	Evening	Veneral Disease	50		Evening	Veneral Disease	50		P.M.	Child health	32
	Evening	Dental	10		Evening	Dental	10		Evening	Veneral Disease	75
Tues.	A.M.	Pre-natal	10	Tues.	A.M.	Child health	26	Tues.	A.M.	Dental	20
	P.M.	Dental	10		P.M.	Veneral Disease	50		A.M.	Pre-natal	12
	Evening	None	None		Evening	Pre-natal	10		P.M.	Pre-natal	12
Wed.	A.M.	Dental	10	Wed.	A.M.	Pre-natal	10	Wed.	A.M.	Pre-natal	12
	P.M.	Tuberculosis	4		P.M.	Veneral Disease	50		P.M.	Veneral Disease	75
	Evening	Veneral Disease	50		Evening	Dental	10		P.M.	Dental	20
Thurs.	A.M.	Pre-natal	10	Thurs.	A.M.	Dental	10	Thurs.	A.M.	Pre-natal	12
	P.M.	None	None		P.M.	Pre-natal	10		P.M.	Pre-natal	12
	Evening	Tuberculosis	4 (2 monthly)		Evening	Veneral Disease	50		Evening	Veneral Disease	75
Fri.	A.M.	Dental	10	Fri.	A.M.	Pre-natal	10	Fri.	A.M.	Child health	32
	P.M.	Veneral Disease	50		P.M.	Veneral Disease	50		P.M.	Pre-natal	12
	Evening	None	None		Evening	Dental	10		Evening	Veneral Disease	75
Sat.	None	None	None	Sat.	A.M.	Dental	10	Sat.	A.M.	Dental	20
					A.M.	Child health	20		P.M.	Child health	32
									P.M.	Veneral Disease	75
									P.M.	Dental	20

ANALYSIS OF VISITS PER WEEK											
Clinic	Visits	Sessions		Clinic	Visits	Sessions		Clinic	Visits	Sessions	
Pre-natal	20	2		Pre-natal	40	4		Pre-natal	72	6	
Child health	40	2		Child health	78	3		Child health	128	4	
Tuberculosis	6	1.5		Tuberculosis	12	1.5		Tuberculosis	21	1.5	
Veneral Disease	150	3		Veneral Disease	300	6		Veneral Disease	525	7	
Dental	40	4		Dental	50	5		Dental	120	6	
Average Visits Per Week	256	Per Year 13,312		Average Visits Per Week	480	Per Year 24,960		Average Visits Per Week	866	Per Week 45,032	
Average Sessions Per Week	12.5	Per Year 650		Average Sessions Per Week	19.5	Per Year 1,014		Average Sessions Per Week	21.5	Per Year 1,118	

HEALTH CENTER DESIGN DATA 2—CLINIC ROOMS



CLINIC ROOMS—TYPE A HEALTH CENTER

EQUIPMENT LEGEND

1. Work counter with cabinets below.
2. Wall cabinet.
3. Sink with arm or knee control.
4. Sanitary waste receptacle.
5. Examination table.
6. Operator's stool.
7. Operator's foot stool.
8. Instrument cabinet.
9. Instrument cabinet.
10. Gooseneck examination lamp.
11. Instrument sterilizer.
12. Built-in soiled linen hamper.
13. Lavatory with arm or knee control.
14. Hook strip.
15. Small desk.
16. Microscope, (dark field).
17. Microscope, (ordinary).
18. Chair.
19. Adult scale.
20. Mirror.
21. Pamphlet rack.
22. Infant scale.
23. Baby dressing bins.
24. Demonstration table.
25. Blackboard.
26. Hot plate.
27. Mobile X-ray unit.
28. Cassette stand.
29. Film viewing box.
30. Educational wall display.
31. Costume.
32. File cabinet.
33. Pneumothorax apparatus with stand.
34. Table for examining babies.
35. Bunsen burner.

Requirements. Two clinic rooms which can be curtained off into two sections each; consultation room; utility room; closets.

Clinic Rooms: Since it is not advisable to hold venereal disease or tuberculosis clinics in a room used for other clinical services, one of the clinic rooms is designed for venereal disease and tuberculosis work and the other for use as a maternal and child health clinic.

The tuberculosis and venereal disease room is curtained off into two sections, each of which is set up as a complete examination room. Each section has its own sink, but one sterilizer will serve both sections. When the room is used for a venereal disease clinic, separation into two sections facilitates and expedites the handling of patients.

When the room is used for a tuberculosis clinic, the mobile X-ray machine is wheeled into the left section, leaving the right section for pneumothorax treatment and use as a dressing room. The X-ray equipment consists of a mobile combination fluoroscopic and radiographic X-ray unit. The mobile type is selected because the room in which the X-ray work is done is also used for other purposes and because the amount of X-ray and fluoroscope work done is likely to be small. A vertical cassette holder on a floor stand which can be shifted to any desired location is provided for chest radiography. Any convenient examining table may be used for radiography of other parts of the body. A hand fluoroscope and fluoroscopic shutters and control are supplied as accessory items.

A small dark room, as shown in

the floor plan of the Type A health center, is provided with a three-section developing tank. The two end sections of the tank have a capacity of three gallons each for developing and fixing solutions; the middle section is used for washing films. A film dryer and a storage bin for unexposed films are also provided. Not all health centers require a refrigerated water cooler; when needed it may be located under the film dryer.

The maternal and child health unit can be curtained off to provide an examination room for the prenatal clinic. Two dressing booths allow one patient to disrobe while another is being examined. When the space is needed for a child health clinic and demonstration room the curtain can be drawn back or entirely removed. The baby dressing bins and other equipment are the same as those for the maternal and child health clinic in the Type B-1 and B-2 health centers.

Consultation Room. The consultation room permits private consultation between doctor and patient. It also serves as an examination room for infants during the child health clinic.

Utility Room. This is a general workroom for the nurses. Sufficient storage space has been provided for sterile packs and other materials required in the clinic. The portable X-ray machine is stored in this room when not in use.

GENERAL PLANNING DATA

Site. Selection of a suitable site for a health center is important. The center should be removed from the main business area but in a place that is accessible to common carriers. Ground space should be large enough to allow for future expansion. A site in or adjacent to a public park, where recreational facilities are at hand, is ideal. Vehicular parking space should be provided.

Preferably, the center should be in a separate building. It should not be located in a city hall, courthouse, school building, or welfare center. Those who argue for placing health departments in schools say that such an arrangement is ideal for the promotion of child health. Child health work, however, is only one

of the necessary activities of a local health department. The health department is also engaged in venereal disease control, tuberculosis control, and other activities for which a school building is not a desirable location. City halls and courthouses are unsuitable because the activities of the health department differ in all essential respects from those of other governmental units. Basic equipment bears no resemblance to that employed by other agencies, nor are techniques at all related to those of other agencies. Location in common with the welfare center is not advisable because the relief group constitutes only a small part of the health department clientele.

An ideal arrangement is to establish the health center on the grounds of a

publicly owned hospital. The next best is to locate it near a non-publicly-owned hospital organized to meet community needs. In this way the health department can utilize the hospital equipment and clinical staff, thus providing better service at lower cost.

General plan. The layout of a center plan should provide for five main areas. (1) The main entrance, including the public waiting space, (2) the administrative area, including offices for the health officer, sanitary engineers, and nurses, and the record space, (3) the clinic area, (4) the auditorium, and (5) the service area, including the heating plant, storage space, and maintenance rooms.

All of these areas except the service area should have direct access to the

HEALTH CENTER DESIGN DATA

3—MATERNAL & CHILD HEALTH CLINIC

ARCHITECTURAL RECORD
TIME-SAVER
STANDARDS
JULY, 1942



main waiting room. A separate staff entrance to the administrative area is desirable but not essential. It is also advisable to have a separate outside entrance to the auditorium.

The administrative area may be placed on the second floor of a two-story structure but it is always advisable to have the main clinical area on the first floor.

In planning, it should be borne in mind that programs and techniques change. Therefore, flexibility of interior arrangement should be considered and sufficient ground space should be allowed for future expansion.

Public waiting area. The waiting room should be attractive and well lighted, with sufficient floor space to allow approximately 9 sq. ft. per person of the expected maximum patient load for a clinic session. Either benches or chairs may be utilized for seating, but comfort of visitors is a primary consideration. Public toilets, telephone booths, and drinking fountain should be located conveniently nearby. An information counter, immediately adjoining the record space, should be directly opposite or near the main entrance.

Racks and shelf space should be provided for health educational pamphlets and other literature. Wall space should be available for display of educational posters and bulletins. Mural paintings may be advantageously employed.

Sheltered perambulator parking space should be provided near the entrance.

Auditorium. In order to permit simultaneous use of the auditorium by several groups, folding partitions or screens should be provided to divide the floor area into smaller sections. Movable seats are preferable to fixed seating because they permit a variety of arrangement and allow greater flexibility in the use of space.

A small speaker's platform for use during medical society meetings, educational lectures, and other gatherings is necessary. Provision should be made for a projection machine and screen, and for lightproof window shades.

The auditorium should be connected with the health center waiting room. A separate entrance from the outside is necessary, however, to allow auditorium audiences to enter and leave without disrupting clinic sessions.

Where site space is limited, the auditorium may be placed in the basement.

Administrative area. Offices of the health officer and assistant health officer should be accessible from the main waiting room through the secretary's office.

The record room contains records of clinic patients and vital statistics of the community. It should be convenient to the information counter in the main waiting room and adjacent to the nurses' room.

The nurses' room is the office and work room of the field nurses. Here

HEALTH CENTER DESIGN DATA 4—VENEREAL DISEASE CLINIC

the nurses make out their home nursing records and prepare supplies.

The offices of the sanitary engineer and sanitarians should be accessible from the waiting room and preferably close to the laboratory. In smaller health centers a single office may suffice for this group of personnel. Floor space should be adequate for the required number of desks, a drafting table, and special files.

The laboratory will be used chiefly for the examination of water and milk samples collected by the sanitary engineering personnel. In large centers it is desirable to have a staff conference room and library.

Separate toilets should be provided for the administrative staff.

Clinic area. In small health centers the clinic load may require only a few clinic rooms. Each of these should be planned with sufficient flexibility to accommodate several kinds of clinical services on different days. Certain types of services, however, should not be performed in rooms utilized for other services. The tuberculosis and venereal disease clinics, for example, may be conducted in the same room at different times, but it is not advisable to have either of these services located in space utilized for a well-baby clinic.

In large health centers the various clinical services may be accommodated in separate suites. Under such circumstances each suite may be designed to permit the most efficient operation of the particular service.

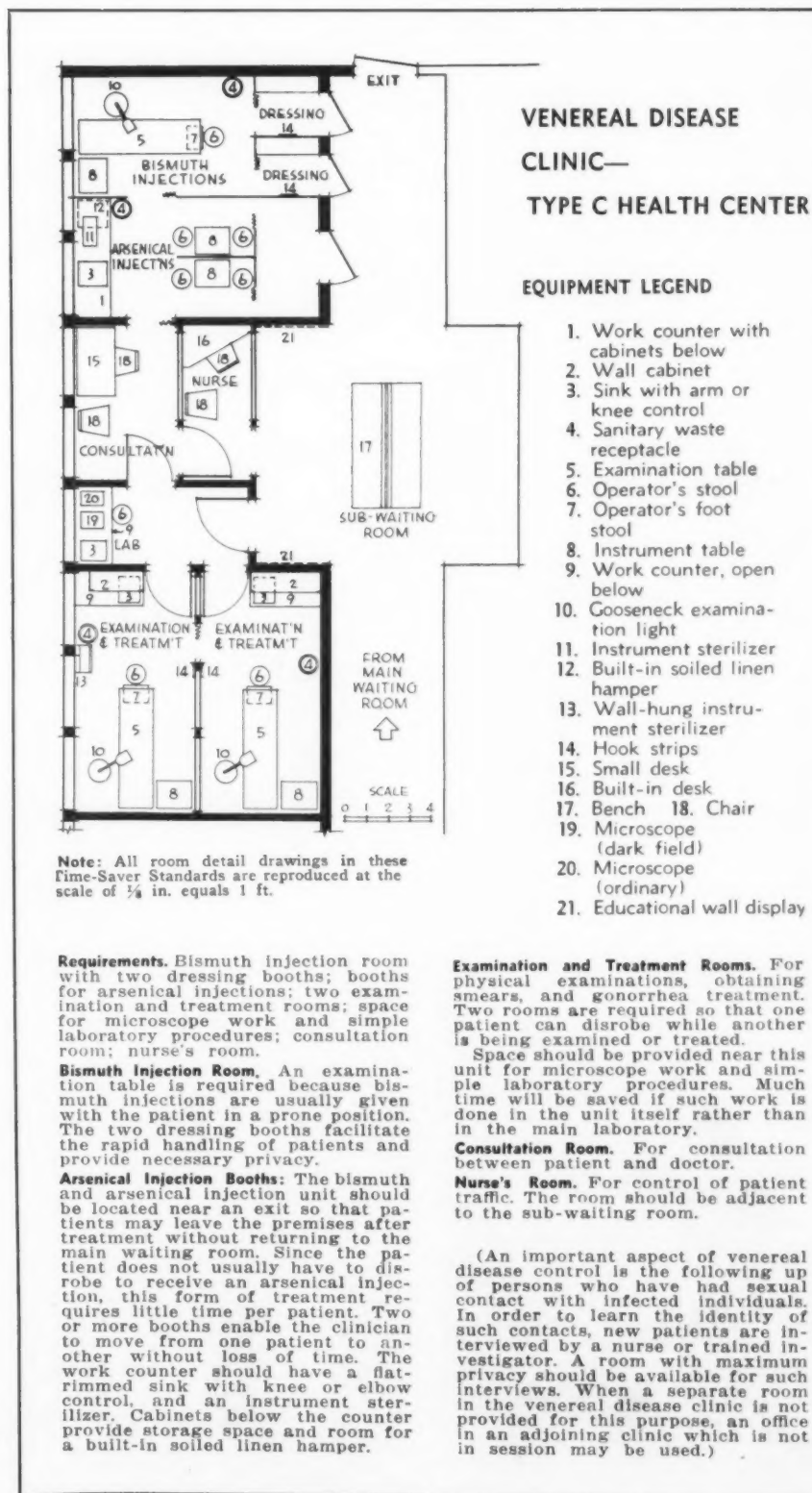
While a general waiting room may be used for the entire clinic area, in larger health centers small sub-waiting rooms for the various services should be provided, with a steering or control nurse's station adjacent to them. The sub-waiting rooms may be used in common by two or more services, depending on the patient load and clinic schedules. The clinic schedules should be arranged so that neither tuberculous nor venereal disease patients will occupy the same waiting space at the same time as other types of patients.

Privacy is essential in proper management of venereally infected individuals. Therefore, the venereal disease clinic should have a separate exit to permit patients to leave without going through the waiting room and lobby.

A recovery room should be provided in large health centers. It should be situated so as to be convenient to all clinical services. Venereal disease and dental clinics often have their own separate recovery rooms.

If school children are to be given eye examinations, a refraction room will be needed.

A pharmacy is often provided in larger health centers but is not always essential. It should be adjacent to the main waiting room.



Movable partitions are desirable throughout the clinic areas because they permit flexibility of room arrangement as required by changes in techniques and procedures.

Economy of space may be achieved if much of the equipment usually scattered about the clinic is methodically arranged on continuous work counters. **Service area.** The heating, storage, and

HEALTH CENTER DESIGN DATA

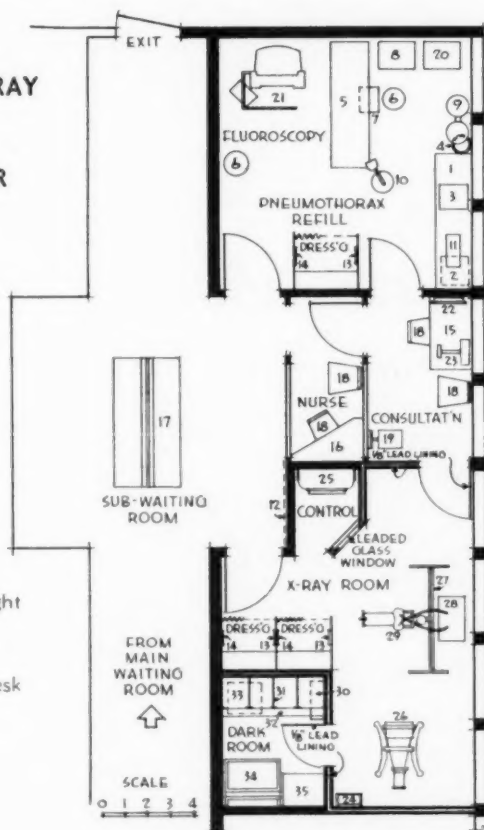
5—TUBERCULOSIS AND X-RAY CLINIC

ARCHITECTURAL RECORD
TIME-SAVER
STANDARDS
JULY, 1942

TUBERCULOSIS AND X-RAY CLINIC— TYPE C HEALTH CENTER

EQUIPMENT LEGEND

1. Work counter with cabinets below
2. Built-in soiled linen hamper
3. Sink with arm or knee control
4. Sanitary waste receptacle
5. Pneumothorax table
6. Operator's stool
7. Operator's foot stool
8. Instrument table
9. Two-basin solution stand
10. Gooseneck examination light
11. Instrument sterilizer
12. Educational wall display
13. Mirror 14. Hook strip
15. Small desk 16. Built-in desk
17. Bench
18. Chair
19. Adult scale
20. Pneumothorax apparatus with stand
21. Vertical fluoroscope
22. View box
23. Orthostereoscope
24. Cassette box
25. Control panel
26. Photo-roentgen unit
27. Tube stand
28. Transformer
29. Tube
30. Cassette pass box
31. Service cabinet
32. Loading bench
33. Film storage bin
34. Developing tank
35. Wall-hung film drier, water cooler below



Requirements. Fluoroscopy and pneumothorax room; X-ray room and dark room; consultation room; nurse's room.

Fluoroscopy and Pneumothorax Room. A fluoroscope is of great value in a tuberculosis clinic. It gives the clinician a quick method of checking the progress of pulmonary lesions. It obviates the routine use of an X-ray film, thus saving both time and money. The room is also used for pneumothorax refill, the process of introducing air into the space between the chest wall and the lung of the patient in order to place the lung at rest and give lesions a chance to heal. The fluoroscope is usually used in connection with the pneumothorax process, so it is advisable to have both types of equipment in the same place. Lightproof shades are required for the fluoroscopic work.

A counter containing a flat-rimmed sink with knee or elbow control, an instrument sterilizer, and space beneath for storage and built-in soiled linen hamper are needed in this room. A curtained dressing booth with hook strip and mirror should be provided.

X-ray Room and Dark Room. The X-ray room contains a photo-roentgen unit, high-voltage transformer, side rail, tube stand, and shockproof X-ray tube. A cassette holder is not included. Instead of a cassette holder a clip arrangement on the front

of the photo-roentgen unit can be made which will take a 14"x17" cassette. This saves the cost of a cassette holder.

The photo-roentgen unit is selected for this type of center because it offers an effective and economical means of discovering chest pathology. With this unit, large groups of people can be examined at minimum cost with a high degree of accuracy. Either flat films or stereoscopic films can be used. The 200-milliamper X-ray unit with a stationary anode tube is adequate for making good small films.

The dark room contains all the modern accessories needed for efficient work. Developing solutions are kept at proper temperatures by circulating water, the temperature of which is controlled by a mixing valve when the tap water temperature is below 65°F. and by a refrigerated water cooler when the water temperature is above 65°F. Developing tanks are on one side of the room and the loading bench with a film drier and film storage on the other. This divides the dark room into a wet and a dry side—a desirable arrangement. A cassette pass box is indicated in the plan but is not necessary unless the personnel is to include a dark room technician.

Consultation Room and Nurse's Room. (See Venereal Disease Clinic—Type C health center, page 76.)

maintenance rooms of the service area are usually in the basement, which may not extend under the entire building. A record storage room should be provided apart from the general storage room.

Structure. Modular unit planning and continuous fenestration, highly desirable for proper lighting, will permit both flexibility in original planning and future rearrangement of interior space. A module of 4 ft. will be adaptable to standard wallboard dimensions.

Small health centers need not be fireproof, and can therefore be of wood frame construction. The wood frame of the structure can also be the window mullion, thus permitting continuous fenestration and ventilation. Brick veneer, masonry, or reinforced concrete may also be used. But regardless of the material used it is well to adhere to the modular scheme of planning.

At the present time consideration must be given to the availability of materials and to the amount of labor required in the use of various materials. The health centers here shown are well adapted to the use of prefabricated wood panels.

Windows in the clinic area should be glazed with translucent glass which will diffuse the light evenly through the room and yet afford privacy.

Wherever possible, interior corridor partitions should be glazed above eye level to provide borrowed light.

Utilities. With flexibility of plan it is necessary to have flexibility of utilities.

Piping should be grouped, preferably along an outside wall, so that it can be reached readily if changes in plumbing fixtures become necessary.

A sufficient number of electrical outlets should be provided in examining and treatment rooms to serve all necessary examining lights and equipment.

Radiators and ceiling electrical fixtures should be arranged so as not to interfere with partition changes.

Finishes. In general, interior surfaces should be durable and non-absorbent. Walls may be of smooth plaster finished with lead and oil paint in light, pleasing colors. Wooden surfaces may be given a natural finish. Where walls are subject to heavy wear or contact with people a more durable wainscoat may be necessary.

Floors may be linoleum, composition, cork, asphalt tile, or cement.

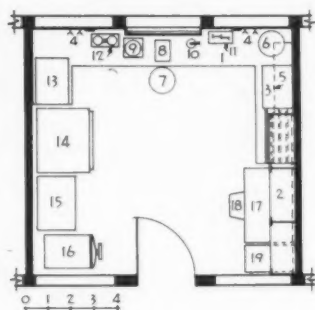
Movable partitions may be of plywood or steel, when the latter is obtainable.

Ceilings should preferably be acoustically treated in waiting rooms, auditorium, corridors, and maternal and child health clinics.

Doors should be flush panel.

Interior trim around doors and windows should be eliminated insofar as possible, using integral buck and trim flush with plaster. There should be no projecting mouldings to collect dust.

HEALTH CENTER DESIGN DATA 6 — LABORATORY AND NURSES' ROOMS



**LABORATORY—
TYPE B HEALTH CENTERS**

EQUIPMENT LEGEND

1. Acid-resisting work counter with cabinets below.
2. Wall cabinet.
3. Acid-resisting laboratory sink and drainboard.
4. Utility outlets, gas, air, electricity.
5. Acid-resisting shelf.
6. Centrifuge.
7. Stool.
8. Microscope.
9. Hot plate.
10. Bunsen burner.
11. Burette stand.
12. Scales.
13. Incubator.
14. Refrigerator.
15. Hot air sterilizer.
16. Autoclave.
17. Desk.
18. Chair.
19. File cabinet.

Requirements. The work to be done by the health center laboratory will vary with the size of the community, and with the availability of other laboratories in the area. It will also depend on whether the health center is to serve a city, county, or district consisting of several counties. The function of the laboratory is to aid the clinician, the epidemiologist, the nurse, the milk sanitarian, or the sanitary engineer by the examination of submitted specimens.

Experience indicates that a laboratory will be called upon to make approximately 6,000 examinations a year in a city of 100,000. The scope of activities will vary in different regions, but under ordinary circumstance the laboratory should be prepared for the following work:

1. Bacteriological examination of specimens for the diagnosis of diphtheria, tuberculosis, typhoid fever, gonorrhea, syphilis, streptococcal infections, and pneumonia.
2. Microscopic examinations (either dark field or stained preparations) for *treponema pallidum*, the plasmodium of malaria, etc.
3. Bacteriological and chemical examination of water from public and private sources, including swimming places, and of sewage or industrial wastes. Small laboratories may find it necessary to rely on the State health department laboratory for chemical analysis.
4. Physical, bacteriological, and chemical analysis of milk and frozen desserts.
5. Bacteriological and chemical analysis of food and drugs, and examination of eating and drinking utensils for contamination.

The extent to which biological products are distributed depends upon the policy of the State in supplying them to local communities. Insofar as practicable the laboratory should keep in stock fresh supplies of the following biological products to be made freely available to physicians and to be distributed by the division of communicable disease control:

- Diphtheria antitoxin and toxoid
- Standardized toxin for Schick testing
- Typhoid and smallpox vaccines
- Tetanus antitoxin
- Anti-meningococcus serum
- Anti-pneumococcus serum
- Tuberculin
- Silver nitrate solution for prevention of ophthalmia neonatorum and drugs for treatment of the venereal diseases.

If facilities for carrying out portions of the above work are available at nearby hospitals, or if well-equipped laboratories for examination of water and sewage are maintained at water or sewage treatment plants in the vicinity, it will be possible to reduce facilities needed at the health center accordingly.

It will also be necessary to maintain complete records of all specimens examined. Laboratories should be large enough to permit conducting of special studies when needed.

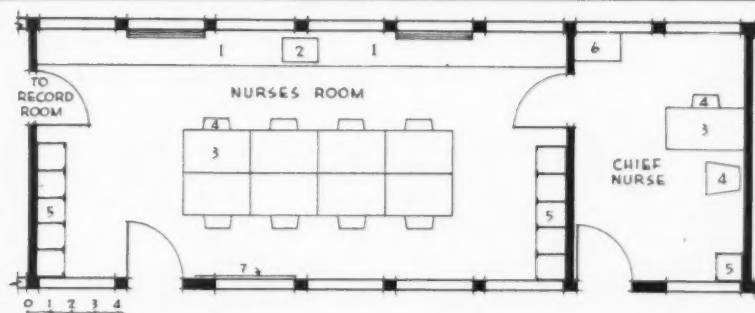
In the larger cities two-room laboratories are to be preferred. It may be possible in some instances to place sterilizers or autoclaves outside, but adjacent to the main workroom. This will assist in maintaining comfortable working conditions in the laboratory.

**NURSES' ROOMS—
TYPE B HEALTH CENTERS**

EQUIPMENT LEGEND

1. Work counter with cabinets below.
2. Sink with arm or knee control.
3. Small desk.
4. Chair.
5. Lockers.
7. Bulletin board.

Requirements. A large room in which the nurses can work on their home visit case records and reports, and prepare their nursing supplies and kits; a private office for the chief nurse.



The nurses' room should have a small desk and chair for each nurse, if possible. Each nurse should have a locker for her kit, coat, and other personal belongings.

A work counter and sink should be provided for the nurses to pre-

pare their nursing supplies. Ample cabinet space under the work counter is necessary for the storage of nursing and stationery supplies.

A large bulletin board should be situated where it can be seen easily on entering or leaving the room.

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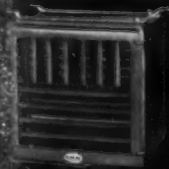


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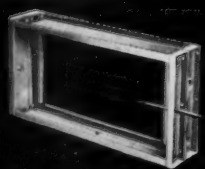
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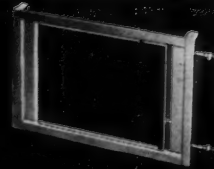
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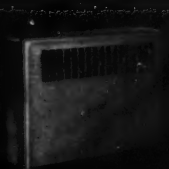
MARINE VENTILATING
PRE-HEATER



CANTONMENT
HEATING UNIT



MARINE VENTILATING
RE-HEATER



CONVECTOR
RADIATOR

REQUIRED READING

By ELISABETH COIT, AIA

AMERICAN BRIDGES AND DAMS. By Paul Zucker. New York, Greystone Press, 1941. 16 plus 48 pp., 8¾ by 11½ in., photos. \$1.75

WITHIN a short time we have had four notable contributions to the literature of American bridges: New York Triborough Bridge Authority's fifth anniversary brochure (ARCHITECTURAL RECORD, Sept., 1941, p. 28) showing five bridges in that metropolitan area, Congdon's "Covered Bridge" limited to Vermont (ARCHITECTURAL RECORD, Dec., 1941, p. 30), "Bridges and Their Builders" by Steinman and Watson (ARCHITECTURAL RECORD, March, 1942, p. 26) and the present work in the Greystone Panorama series.

None of these is technical: yet each tells much about typical engineering problems and their solutions as well as about the social value of the different structures, and especially this slender picture book, wider in scope than the others.

A short introduction and 48 half-tones with informing captions describe natural and man-made bridges and dams from the Pacific to the Axis. The superlatives which decided the selection compel attention. This bridge is "the longest on earth," that "the largest floating structure in the world," another is the "tallest and longest single-span suspension bridge," Boulder Dam "the most impressive . . . by day or night," Grand Coulee "the world's biggest man-made structure," and so on, each superlative justified by statement of figures and achievements of the structures.

FAIR IS OUR LAND. Edited by Samuel Chamberlain. New York, Hastings House, 1942. 252 pp., 7 by 9¼ in., illus. \$5.00

THIS American sequel to "France Will Live Again" (ARCHITECTURAL RECORD, Feb., 1941, p. 24) and "This Realm, This England" (ARCHITECTURAL RECORD, July, 1941, p. 30) presents over 300 photographs as well as 40 etchings and more than a score of drypoints, lithographs, wood cuts, engravings and aquatints. Many of the views are by well-known photographers, (Frances Benjamin Johnston, Ewing Galloway, among others, besides Mr. Chamberlain's own work). The grouping is by subject: The Great West, The Sea Coasts, Inland Waters, The Countryside . . . showing these

now as scenery, now as background for out-of-door industry: fishing, shipping, agriculture and stock farming. The section called "Our Architectural Heritage" contains source material from New England to California; the whole forms a heartening and delightful "Portrait of America."

NEW YORK CITY BUILDING CONTROL: 1800-1941. By John P. Comer. New York, Columbia University Press, 1942. 289 pp., 6 by 9 in., \$3.25

A THOROUGHLY documented history and critique of the administration of New York City's building regulations during a century and a half, written by the professor of political science at Williams College.

The purpose of building laws is to "specify how buildings of various occupancies shall be constructed and arranged to secure at least a reasonable measure of safety with respect to stability, fire prevention, exit facilities, habitability and sanitation." The mode of application of those laws and the complicated legal machinery set up for that application are vividly presented, with the chapters on the "Battle of the Boroughs against Mounting Central Control" and the "Organization and General Powers of the Building Agencies, 1933-36" charged with more drama to the square inch than any of the others. Throughout a kind of piquancy pervades this serious, detailed work: it seems to result from the mental footnotes—critical, explanatory and sometimes good material for libel—provoked in the reader by the masterly dry restraint of the narrative.

Case histories of buildings, and transcripts from hearings illustrate the struggle to develop and to clarify the administration of the building laws, a struggle in which the plain, practical citizen and the technician have played their part as well as the reformer and the obstructionist.

A table of cases and a 10-page index complete the book.

OBSERVATIONS ON THE HEPHAISTEION. By William Bell Dinsmoor. Princeton, N. J., American School of Classical Studies at Athens, 1941. 171 pp., 8¾ by 11 in., 77 illus. \$5.00. (Hesperia. American Excavations in the Athenian Agora: Supplement V)

A REPORT by the professor of archaeology at Columbia University on his study of the temple long known pop-

ularly as the Theseum, but, as a result of the recent excavations of the American School, now definitely identified with Hephaistos, the god of fire and metallurgy.

To most architects perhaps the method of reconstructing the 24 centuries of the structure's varied life will be of greater interest than the value, archaeologically speaking, of the conclusions; and not a few may be discouraged by the long chapter near the beginning on the graves of 19th-century British travelers "who by a cruel fate expired so far from their native land." But architect and layman who persist in the stiffish reading involved will have got not only a good grasp of the building as architecture but also a rich idea of the life and times of the people whose monument this is: the materials and the structural processes they knew, their waterproofing with lead and cement, their color-work, tool marks, and a thousand social details meticulously described from pottery fragments: human figures, animals, plants, costumes, lamps, chiton, corselet, spear, chariot, flutes, horn, purple hair.

RECOMMENDATIONS OF THE NATIONAL COMMITTEE ON THE HOUSING EMERGENCY. New York, The Committee, 1942. 30 pp., 8½ by 11 in., \$0.10

CONCISE, comprehensive statement of questions of war and post-war planning for workers' housing: types of housing, standards, design, management, where housing should be built and by whom, how public and private activity might be correlated.

Like all others concerned with the complexities of present-day housing the Committee recognizes that state authorities ought to be responsible for housing in states having no adequate provision therefor, and that much housing intended as temporary or demountable will be with us after the immediate urgency, creating a new housing problem.

YOU CAN'T IGNORE MURDER. By Ruth and Walter Teague. New York, Putnam, 1942. 270 pp., 6¼ by 7½ in., \$2.00

CONVENTIONAL as mystery setting and action: A country house with guests, servants, and neighbors who, almost without exception, roam around the

(continued on page 84)



FIGURE 1

REINFORCED WINDOW PANE

A NEW TYPE window pane which, it is stated, will withstand the explosion of a 150-lb. bomb eight ft. away, has been developed for use in military construction and industrial plants. The material consists of two sheets of a transparent plastic sandwiching 16-mesh wire screening, and can be installed in any conventional multi-paned steel or wood sash. Tested under vacuum shock conditions, it has stood up without appreciable damage under a 28-in. vacuum, while clear glass shattered at 15 in. and heavy wire-reinforced glass at 26 in. At the Navy's Bureau of Yards & Docks a quarter-pound ball dropped from a height of 20 in. smashed ordinary glass while it required a 2-lb. ball from a height of 42 in. to penetrate the reinforced plastic. The missile left a clean-cut hole which could be repaired with cellulose tape. Sheets of the laminated plastic can be drawn or formed to almost any shape, but panels of eight standard sizes are recommended, from 9½ in. sq. to 19½ by 24½ in. Monsanto Chemical Company, Springfield, Mass. (Figure 1.)

WOOD WATER TOWERS

DESIGNS for wood towers for water tanks from 2,000 to 50,000 gals. capacity are now available on request. Also in preparation is a design for a 100-ft. tower to carry a 100,000-gallon wood tank. Timber Engineering Company, Washington, D. C.

SINK-CABINET

A SINK-CABINET combination is offered, involving mostly unrestricted materials. High-fired vitreous china is used for the sink bowl, which is built in to a matched and bolted hard maple top impregnated with a special moisture-controlling agent. The bowl is said to be stain- and acid-proof, and heavy enough to resist all reasonable shock. An ingenious means of top suspension provides a watertight bond between maple and china bowl. The base cabinet is of kiln-dried hardwood. 42 in., 54 in., 60 in., 72 in. long. Mutschler Brothers Company, Nappanee, Indiana. (Figure 2.)



FIGURE 2

DURABLE WATER PAINT

A WATER PAINT said to obtain in 30 days an extreme degree of hardness has been announced. The manufacturer also says it meets washability requirements for interior resin paint as set forth in Federal Specification TT-P-88. This paint can be applied over wallpaper or other surfaces. Low in cost, quick drying and free from offensive odor, it comes in 12 pastel colors. Westco Waterpaints Inc., East Boston, Mass.

NEW DUCTWORK SAVES METAL

FOLLOWING a long testing period, a new ductwork using 20 per cent of the material usually required in ducts for forced air furnaces is now in production. The sheets are shipped flat and require minimum storage space. They are said to have high tensile strength, to be completely fire-proof and thus suitable even for plenum chambers, to possess a high insulating quality which conserves fuel,

and a low resistance to the flow of air, and to be strong and impervious to moisture. The ducts can be put together with airtight connections by sheet-metal workers. Another advantage stressed is lack of expansion and contraction noises. Airtemp Division, Chrysler Corporation, Dayton, Ohio.

FIBERBOARD SHOWER COMPARTMENT

OUTSTANDING features of a new prefabricated shower compartment are: hard-pressed treated fiberboard walls coated inside and out with waterproof baked-on grey enamel; all assembly pieces galvanized steel; no raw edges; precast reinforced concrete receptor. 32 by 32 in. by 75 in. high. Fiat Metal Mfg. Co., 1209 Roscoe St., Chicago, Ill.

PLASTIC-COATED WALL PANELS

PLASTIC-COATED wall panels which are completely pre-finished and require no treatment after installation are offered to speed up emergency housing construction and remodeling. Designed for new structures or modernizing of old walls and ceilings, the sheets are applied by a waterproof adhesive or with brads. 10 colors, bonded to sheets by heat treatment. For installation by carpenter. Recommended for bathrooms and kitchens, playrooms, nurseries, closets, small shops, hospitals, etc. Barclay Manufacturing Company, 385 Gerard Ave., New York City. (Figure 3.)

(continued on page 88)



FIGURE 3

REQUIRED READING

(continued from page 80)

house and grounds at night. Rather according to pattern also the suggestion that the plot was thought up too close to the dénouement. But unusual, exciting and even convincing, that particular house near Flemington in famous Hunterdon County, N. J. Delightful far beyond most mysteries the characters and conversation of three top-ranking architects, Finnish, Swed-

ish, Italian, and their respective wives—dignified, likable, intelligent all—and their equally top-ranking American industrial designer host and his novelist wife who tells the tale.

"Whatever you like about the characters has been derived from friends of ours," we are told; and whether or not we achieve inclusion in later mysteries by these partners, we declare

ourselves their friends, ready after studying *Design This Day* for any improvisation called for through a summer night in such good company.

PERIODICAL LITERATURE

DAS WERK. Zurich, Switzerland, Feb.-March, 1942. V.29, NOS. 1-2 /40/ plus XLVIII pp.

A DOUBLE NUMBER of the BSA monthly (Bundes Schweizer Architekten . . .), devoted mainly to the recently erected buildings at the University of Freiburg, and containing three papers by Mr. Honegger of the firm Fernand Dumas and Denis Honegger, architects to the University; an essay on the place of these buildings in the architectural scene by the editor of *Das Werk*, Peter Meyer, and a masterly essay on "Idee und Form" by Werner Taesler of Stockholm—so far the last word on the question of the monumental versus the functional in architectural design.

The non-Swiss world is sometimes astonished by the situation in that small confederation of one of the world's great international research universities at Zurich; by the quiet modern-ness of student life in many respects far beyond anything from Moscow to these United States. In this number of *Das Werk* again one finds unexpectedly and delightedly in some three score photographs, sketches and plans, a background for study and research equally quiet but literally spectacular beyond what most of us know: sunlit interiors, free-standing stairs, open-air auditorium, physical culture suites, a tapestry-lined senate chamber of ultra-modern simplicity.

The international situation often either delays or entirely prevents our seeing *Das Werk*, one of Europe's outstanding architectural publications. This stimulating number is therefore the more refreshing and consoling.

THE NEW HISTORY OF ARCHITECTURE. By Carroll L. V. Meeks. Journal of the American Society of Architectural Historians, Troy, N. Y., V.2, No. 1, Jan., 1942 (rec'd. June 15, 1942), pp. 3-7

A BLITZ-SWIFT résumé, à propos of
(continued on page 86)

A BIG HELP TO ARCHITECTS AND ENGINEERS



TYPICAL DESIGNS OF TIMBER STRUCTURES
A Reference for Use of Architects and Engineers

THIS FREE REFERENCE BOOK shows in detail how designers are taking full advantage of the TECO System of Construction by using timber as a modern engineering material. Available to any architect or engineer who has not already received a copy. Please write on your firm letterhead.



TECO Ring Connectors spread the load on a timber joint over practically the entire cross-section of the wood.

Timber

ENGINEERING COMPANY

WASHINGTON, D. C.
PORTLAND, OREGON

An Architect Discusses the

reliable efficiency of

OIL BURNING SYSTEMS



J. Hunter Field, of Cross & Cross, prominent New York Architects, has selected Petro equipment for most of his buildings, among which are the Nassau Hospital in Mineola, Long Island, where the central heating plant serves the 250-bed hospital, the laundry, the nurses' home and seven other buildings; also the Harlem Savings Bank at 181st Street and Broadway, New York, consisting of the bank facilities, shops and a large restaurant. Mr. Field makes these comments about oil heating systems:

"Based on my experience, I have found that Petro Oil Burning Systems have operated over many years with the highest efficiency and satisfaction to owners, occupants, engineers and architects. This kind of service is essential in hospitals and institutions where the health of the occupants demands a reliable and properly controlled system of heating.

"For the duration, Petro equipment will be put to its most rigid test in the constant 24-hour heating service required in war industry. In my opinion Petro will meet this test one hundred per cent."

Petro Oil Burning Systems

are available only—"for duration", on orders carrying high preference ratings.

BUT—

Petro service, parts for necessary maintenance, and engineering consultation and services, are still fully available.

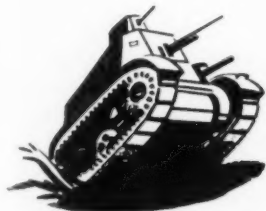
AND—

hundreds of Petro Oil Burning Systems are meeting unprecedented steam demands in war production plants everywhere;

—24 hour operation, far above normal ratings, day after day, week after week;

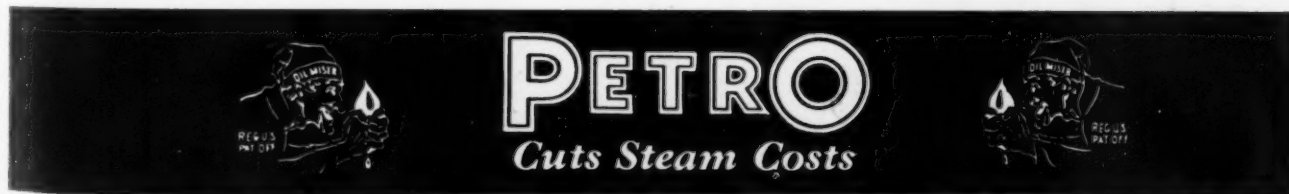
—a "break down" test on a gigantic scale which Petro equipment is meeting efficiently, economically, reliably, and without breaking down because ample reserve strength and wear has always been built into Petro.

In addition to being proud of such performance, we think it is a good thing for specifiers to remember against the time when conditions again permit the free selection and installation of normal industrial and commercial firing equipment.



OIL IS AMMUNITION USE IT WISELY

Full data on Petro Industrial Burners are in our Catalog in Sweet's Catalog file—or we will gladly send copies on request.



PETROLEUM HEAT AND POWER COMPANY

STAMFORD

—Makers of good Oil Burning Equipment since 1903—

CONNECTICUT

REQUIRED READING

(continued from page 84)

new teaching techniques for architectural history, from pre-lake dweller times to "the future of our kind of civilized society," with consideration of the ever-increasing rôle of the engineer—as distinguished from that of the architect which formerly embraced it—and of the troubles of the archaeologist-architect who "can't design a Cape Cod hangar." "The architect's proper and venerable rôle is that of planner, of being able to plan better than anyone else any building or any

areas of the earth's surface as needed by his contemporaries."

WARTIME PERMANENT HOUSING IN SHROPSHIRE. By J. Brian Cooper, F.R.I.B.A. *The Architect and Building News*, London, April 17, 1942, pp. 41-6. Plans, photos, details

THOUGH emergency housing has necessitated some temporary dormitory barracks, good housing planned for permanency is illustrated in the development at Salop for 850 families, with possibility of another 200 units later.

Eight families to an acre; all of the houses of two stories; a small licensed hotel; shops; village hall with canteen, clubrooms, library; children's playgrounds; garden allotments; tennis courts; bowling green. A junior school, a nursery school with adjoining children's clinic, a senior school on the other side of the town estate; doctor's house with dispensary, waiting room, surgery; garages in groups to be let separately. Ten types of houses, some flat roofs, some sloping, on pleasantly curving streets well disposed with regard to community facilities.

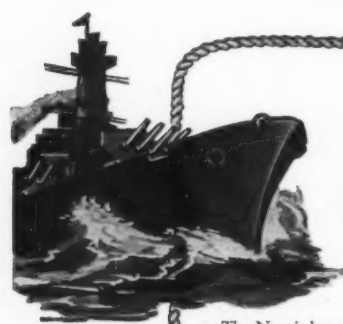
A SURVEY OF HOSPITALS. By Addison Erdman, AIA, *The Octagon*, Washington, D. C. May, 1942, 20 pp., 8 1/2 by 11 in.

AN INFORMING report of two years' study of over 80 hospitals in 17 states under an AIA Langley Scholarship.

The 1938-40 report is concerned with physical features of hospitals, e.g., ward and maternity units, operating rooms, private rooms, services for communicable diseases, psychopathic wards; and the 1940-41 report discusses problems in planning and administration of special institutions—medical school hospitals, tuberculosis sanatoria, children's convalescent hospitals and mental institutions—as well as trends in general hospital planning.

INFORMATION CENTER, ISLINGTON. *Architectural Journal*, Cheam, England, April 23, 1942, pp. 297-300. Plan, photos

A NEW TYPE of public service building to house in one center inquiry offices for many types of war's victims: Poor man's lawyer, poor man's valuer, rehousing, billeting, general information, advice, etc. The floor area is 9,214 sq. ft.; the construction, offering the same protection as that required for public shelters, is largely brick and concrete with minimum steel reinforcement. Offices line the walls of about two-thirds of the building, clerestory lighting is by heavy lenses in reinforced concrete frames. Through the center of the floor space are ranged two banks of interview boxes with chairs either side of the continuous counter for inquirers and officials, providing comfort and adequate privacy. Small children may be left in the play pen near the entrance.



HEALTH for MEN of WAR

The Navy's huge new Medical Center, monumental in appearance with its 22 story tower yet covering some 247 acres and housing more than 1500 patients, is a "bee hive" of activity. Its structure and equipment are the last word in scientific achievement.

The selection of Holtzer-Cabot Hospital Signaling Systems speed the efficiency of administration that our "Men-of-War" may have the best in hospital service and attention.

As in thousands of American Institutions they provide quick contact with patients, nurses and doctors. A fire alarm system protects life and property. Silent Visual Paging facilitates staff operations. A Sound System provides for radio program, recording and public address transmission.

Patients are more comfortable with less effort. They know the peace of mind that comes from constant contact through a dependable Nurse's Call System.

Such time saving features quicken the pace of administration; lessen the work and steps of busy doctors and nurses; help patients to a speedier, stronger recovery.

The Holtzer-Cabot Electric Company

Offices in All Principal Cities

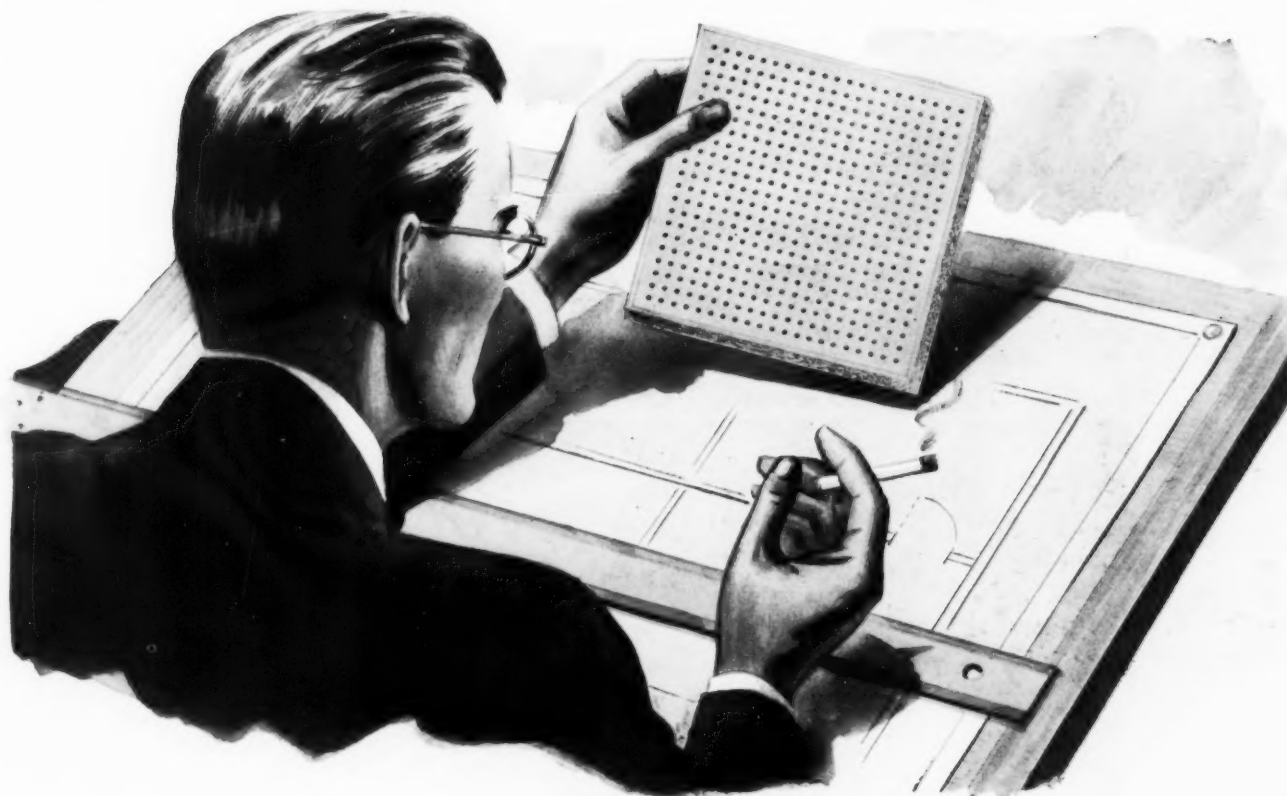
125 AMORY STREET
BOSTON, MASSACHUSETTS



U. S. Naval Medical Center
Bethesda, Md.
Architect,
Paul Philippe Cret,
Philadelphia
General Contractor,
John McShane
Electrical Contractor,
Harry Alexander,
Washington, D. C.
Photo, Harris & Ewing
Signals, Holtzer-Cabot



When You Get to Sound Conditioning In Planning That New Hospital...



...TAP THE VAST FUND OF EXPERIENCE
GAINED IN MORE THAN 800 HOSPITAL INSTALLATIONS!*

THAT modern hospitals need sound conditioning goes without saying. It is for the architect to decide *what* sound conditioning is to be specified. One basis for such a decision may well be the *hospital experience* of the acoustical service considered.

Celotex Sound Conditioning is now giving splendid satisfaction in more than 800 hospitals from coast to coast. Whether your plans call for acoustical treatment throughout the

entire building, or only in certain rooms and corridors, Celotex representatives can cite a comparable case worth your investigating. Celotex Acoustical Products are available NOW!

Solidly developed through more than fifteen years of field experience in sound conditioning hospitals, this national organization offers you (1) Proved engineering practice, (2) Uniformly dependable acoustical products, and (3) Guaranteed results.

*A folder listing these hospitals will be sent on request.

CELOTEX
SOUND CONDITIONING

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In Canada: Dominion Sound Equipments, Ltd.

THE CELOTEX CORPORATION • CHICAGO

(continued from page 83)

OIL-LESS WALL FINISH

AN OIL-LESS interior wall finish will shortly be available in all sections of the country except the West Coast. This is said to be an entirely new product, made possible by recent developments in the field of synthetic resins and employing new scientific principles. Its vehicle consists of a water - and - synthetic - resin emulsion.

The new finish, it is claimed, can be applied directly over practically any type of surface except kalsomine—including wallpaper—without priming. Sherwin Williams Company, 101 Prospect Ave., N. W., Cleveland, Ohio.

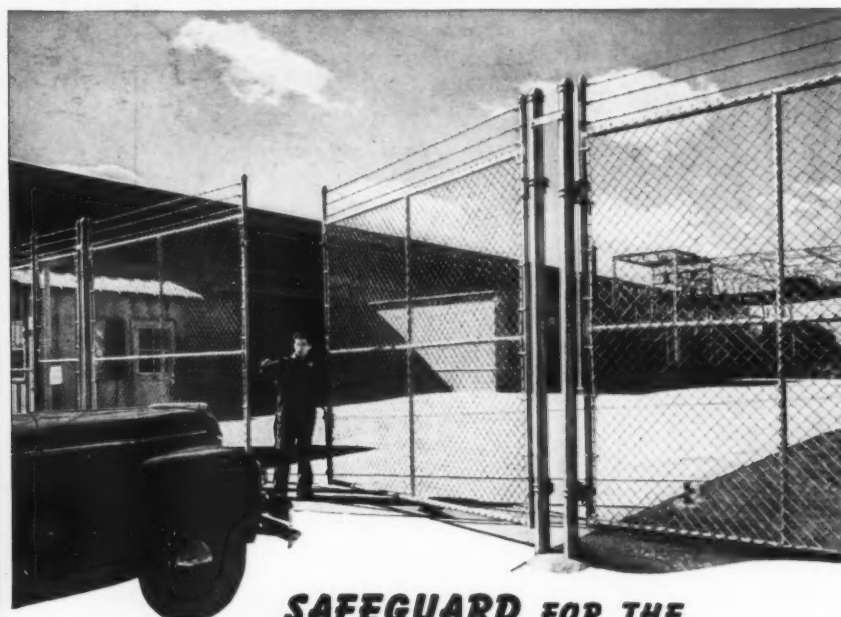
BLAST CUSHIONER

A NEW blast-cushioning incombustible glass fiber material for blacked

out war production plants has been announced. The material is composed of fine resilient glass fibers compressed and treated with a binder and faced with glass fiber cloth, plywood or other surfacing material. The material is designed to reduce damage from concussion and provide protection against the spread of fire caused by incendiaries or explosives. It may be used as window coverings and as interior facings for exterior walls. Owens-Corning Fiberglass Corporation, Toledo, Ohio.

PAGE FENCE

America's First Wire Fence - Since 1883



SAFEGUARD FOR THE OPERATIONS THAT WILL MAKE AMERICA SAFE

• To make America safe, its production plants must be protected against all with malicious intent. On its service and quality records, Page Industrial Fence is recommended for trustworthy duty at property boundary lines. • Woven wire fence was originated by J. Wallace Page in 1883, and the company which he founded has been a leader in every major development for 59 years. • Page Fence distribution is unique and extensive. This service is performed by more than 100 local, responsible firms having technical training and fence erecting experience. These fence experts comprise the **PAGE FENCE ASSOCIATION**, Headquarters: Monessen, Pennsylvania.

VICTORY FIRST
At the Page mills, men, machines and materials are on an all-out schedule for production of fence to protect plants working on Government orders

PRODUCT OF PAGE STEEL & WIRE DIVISION—AMERICAN CHAIN & CABLE COMPANY, INC., BRIDGEPORT, CONN.

PROTECTIVE PLASTIC

A BUILDER'S PLASTIC for protecting and preserving steel, wood, masonry, fiberboard and new galvanized steel without neutralizing the zinc plating, is said to have been thoroughly tested in buildings on the New York waterfront. This is an oil base portland cement product, combined with various indestructible fine aggregates. Top achievement given is its direct applicability to red rust covered and mill oiled steel surfaces, and to new galvanized steel without removing the oil. No primer is used. Rogear Company, 11 Water St., New York City.

HEATING DATA

A BULLETIN said to describe a quick and accurate method of determining whether proposed dwellings conform to WPB heat loss and heating plant standards has just been published. It contains heat loss analysis chart and tables of hourly heat loss per sq. ft. for 41 different types of ceilings, walls and floors. The Celotex Corporation, 919 N. Michigan Ave., Chicago, Ill.

LIGHTING COLORS STANDARDIZED

THREE standardized cold-cathode fluorescent lighting colors are announced: "Soft White," warmer with pinkish cast, for restaurants, food shops, beauty parlors, etc.; "White," without yellowish cast; "Daylight," like light from a northern exposure skylight. All F. L. A. certified tubing carrying these designations must hereafter closely match the established standards. Fluorescent Lighting Association, 509 Fifth Ave., New York City.

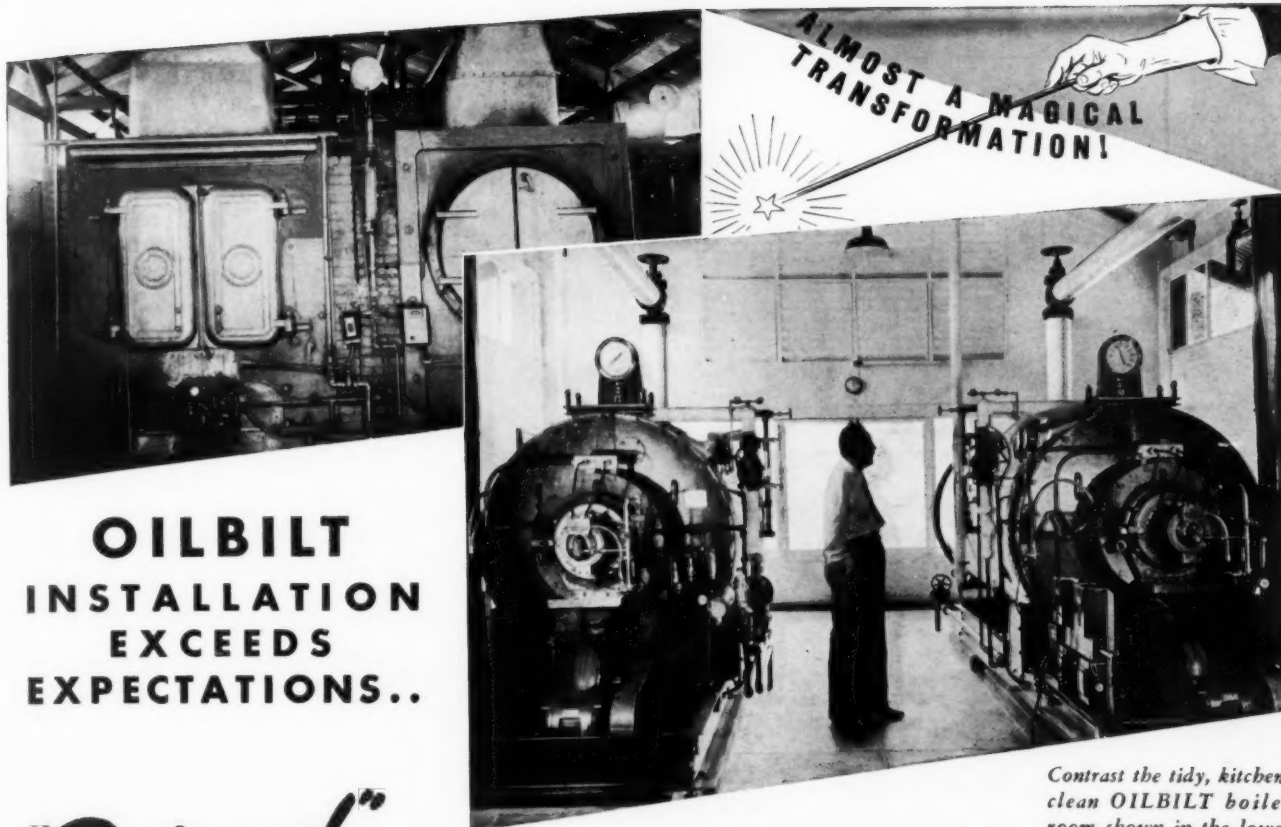
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**OILBILT
INSTALLATION
EXCEEDS
EXPECTATIONS..**

"Packaged"
BOILER UNITS
REDUCE COST APPROXIMATELY 40%

THESE excerpts from the report of Robert B. Witham, Admin-
istrator of The Leahi Home (Tuberculosis Hospital), Honolulu,
Hawaii, after a year's experience with their OILBILT installation,
is typical of many OILBILT performance reports:

"... a little over a year has elapsed since the
original installation of our two 125 hp. OIL-
BILT boilers ... we have had full opportunity
to observe their operation.

"... I made a very careful and exhaustive ex-
amination — before reaching the decision to
purchase them ... analysis of the first year's
log has more than borne out my original con-
clusion.

"... these two boilers when placed in opera-
tion were installed on the line for continuous
24-hour operation — in contrast with the pre-
vious boilers — of the same hp. — operated
from 12 to 14 hours per day — efficiency of
OILBILT exceeded the recommendations of the
manufacturer — cost of operation for a full
24-hour period day after day for the one year's

log has been approximately 42% below that of
the boilers they replaced — we have increased
operating time approximately 35% — reduced
operating cost approximately 40%.

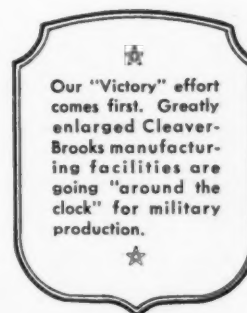
"... this type of boiler offers something not
obtainable from any other method ..."

Modern in every detail and embodying the best
engineering practice and principles, OILBILT
steam plants eliminate ashes, coal dust, smoke,
a high expensive stack. Fuel costs are lowest
because of OILBILT'S high thermal efficiency
— they are specifically designed for efficient
oil-firing with a long, four-pass, down draft
boiler and integral burner. Built in sizes 20 to
500 hp.; pressures 15 to 200 lbs.

Write for bulletin.

CLEAVER-BROOKS COMPANY, 5119 N. 33rd St., Milwaukee, Wisconsin

*Contrast the tidy, kitchen-
clean OILBILT boiler
room shown in the lower
illustration which replaced
the former ponderous,
messy, costly-to-operate
old H.R.T. boilers.*



Our "Victory" effort
comes first. Greatly
enlarged Cleaver-
Brooks manufactur-
ing facilities are
going "around the
clock" for military
production.

Oilbilt

STEAM PLANTS

(continued from page 88)

CORRUGATED ASPHALT SIDING

A NON-CRITICAL building material, in the form of a corrugated asphalt siding, has been developed for use on outside walls of such temporary structures as factory buildings, warehouses, storage and machine sheds and others where corrugated metal siding might normally be used. The material con-

sists of two layers of heavy rag felt saturated in a resino-bituminous compound. The sheets are bound together with a layer of high-melting point asphalt and corrugated under high pressure. Resultant product is said to be strong, lightweight, moistureproof and durable, with corrugations that will not flatten out during summer weather. Weight: approximately 12

oz. to the sq. ft. Sheets 28 in. wide, in lengths of 6, 7, 8, 9, 10 ft. Certain-teed Products Corp., 120 S. La-Salle St., Chicago, Ill.

ORANGE BLACKOUT BULB

CHANGES in the specifications for a blackout bulb are announced, based on the results of tests in actual blackouts. Principal change is in color of the light from blue and red to the deep orange recommended by the Office of Civilian Defense. Other changes are smaller size, reduced current consumption, elimination of built-in reflector and new type of black silicate coating to prevent light leakage. The deep orange light is said to be ample to permit room occupants to see each other plainly, as well as furniture, doors and windows. The bulb fits household sockets. Wabash Appliance Corporation, Brooklyn, N. Y.

PLUMBING AND HEATING REPAIRS

REPLACEMENT installations of plumbing and heating equipment which call for more material than that being replaced are permissible under the Plumbing and Heating Repair and Maintenance Order P-84 if the substitution is one of less critical material, according to interpretation by WPB. It is also explained that prohibition against a substitution "more extensive" than that which is replaced does not mean identical parts must be used: if steel or copper is replaced by cast iron, or copper by iron or steel, the substitution is not "more extensive" even though the substituted equipment may be heavier than that replaced.

WARTIME HEATING UNIT

A NEW oil burning boiler, stripped to essentials for wartime use, has a capacity of 75,000 Btu's per hour. Firebox and fire bowl are combined in a single assembly, less costly but said to be efficient. This model is ample for a house with heat loss of 60,000 Btu's per hour and comes within the Government's limitation of 26 by 26 in. plus allowance for burner enclosure. Gar Wood Industries, Inc., Air Conditioning Division, Detroit.



Autovent

FANS AND BLOWERS INSTALLED IN TEMPORARY GOVERNMENT OFFICE BUILDINGS

Two hundred, twenty-five Autovent Propeller Fans and five Autovent Blowers have been installed in Temporary Government Office Buildings recently completed in Washington, D.C. These buildings are among the newest Government Projects ventilated by Autovent Fans and Blowers.

The Autovent Fan and Blower Division of The Herman Nelson Corporation manufactures a complete line of fans and blowers for efficient, economical ventilation and air conditioning of industrial, commercial and public buildings. At present, these quality products are available only for projects with preference ratings.

If you have a ventilating problem, the Herman Nelson Sales Representative in your locality will be pleased to assist in its solution and will furnish you with complete information about Autovent Fans and Blowers.

HERMAN NELSON hijet HEATERS

are available in 263 models, sizes and arrangements of Horizontal Shaft Propeller-Fan, Vertical Shaft Propeller-Fan, Blower Fan and De Luxe Types.

Hijet Heaters have been installed in hundreds of Air Bases, Naval Bases, Navy Yards, Arsenal, Ordnance Plants, Camps and Forts throughout the United States and its possessions.



Vertical Shaft Propeller-Fan Type hijet Heater



THE HERMAN NELSON CORPORATION

MOLINE, ILLINOIS

MANUFACTURERS OF QUALITY HEATING, VENTILATING AND AIR CONDITIONING PRODUCTS



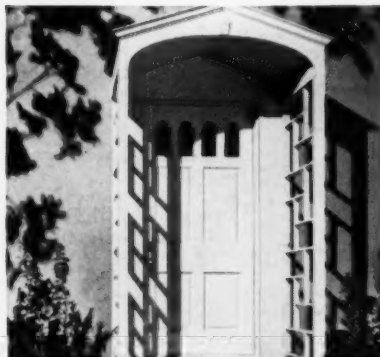
WHAT—NEW WOODWORK LIKE THIS FOR LOW-COST BUILDING?

YES—IT'S "IN TUNE WITH THE TIMES"!

Curtis again makes woodworking news with new woodwork styles, carefully and accurately detailed . . . beautiful enough for the finest home . . . *at prices low enough for the most modest budget.* Here is your answer to the question of putting more beauty, more style, more quality into low-cost housing and remodeling! And remember, the price includes Curtis quality craftsmanship in stock designs. Here are just a few of the many styles available in the new low-cost Curtis woodwork line:



Mantel C-6059, designed by Willis Irvin, Architect. Note the careful detailing, the distinguished simplicity. This is low-cost woodwork, thanks to Curtis' standardization.



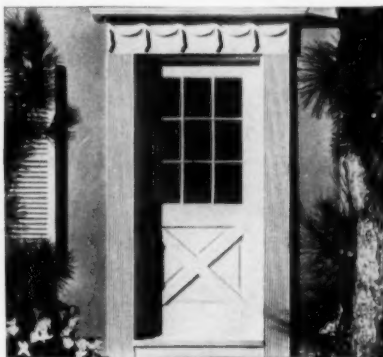
Entrance C-1768, Cameron Clark, Architect. Practical and beautiful, this new Curtis entrance shows that good design need not be expensive.



China Case C-6525, H. Roy Kelley, Architect. No dining room or nook need lack appeal when such woodwork is available for low-cost homes!



China Case C-6529, designed by H. Roy Kelley, Architect. This case may also be used in a straight wall by specifying rectangular back.



Entrance C-1765, Cameron Clark, Architect. Design of famous architects—plus Curtis production—makes such entrances available.



Mantel C-6076, Willis Irvin, Architect. Once, such a distinguished mantel was available only for higher price homes. Now, any home can have it!

1866 CURTIS WOODWORK

CURTIS WOODWORK IS SOLD BY
RELIABLE DEALERS EVERYWHERE

Get all the facts about this new low-cost Curtis Woodwork — see for yourself why it fits the lowest cost home or any home, either new or modernized.
Mail coupon for literature.

CURTIS COMPANIES SERVICE BUREAU
Dept. AR-7W, Clinton, Iowa

I want to know more about the new, low-cost Curtis Woodwork designs. Please mail me complete information.

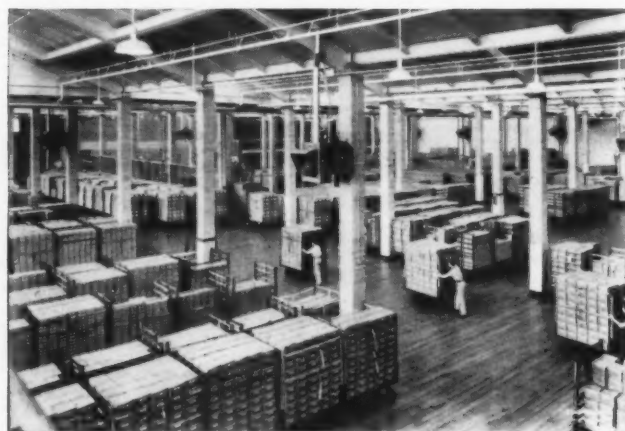
Name.....

Address.....

City.....State.....



AT National Biscuit Company, Atlanta



*Photo, courtesy of G. H. Tennant Co., Minneapolis
Louis Wirsching, New York City, Architect*

... 481,000 Feet of Spotless Maple Flooring

In its new Atlanta bakery, National Biscuit Company has assembled every aid to sanitary, uniform baking—including Maple Floors.

The bakers of "Ritz" know Hard Maple is easy to clean, because it's so compact and *smooth*. Its remarkably tight grain and tough fibre *retain* that smoothness through the years, and give it infinite capacity for taking punishment from loaded trucks and other traffic.

For employees, Maple's warm, resilient comfort retards fatigue, and its spic-and-span surface is a constant reminder of company standards of sanitation.

... Always, with Maple Floors, food plants foster cleanliness and better production—*decrease*, upkeep, maintenance, and floor costs. For conversion of plants, re-floor with Maple.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1782 McCormick Building, Chicago, Illinois



THE SENSE OF THE MEETING

(continued from page 39)

"Our great cities, especially, are full of them. We need planning now so as to assure better building when peace comes. We need it so as to absorb much of the shock which the end of the war effort will bring. We need it to show ourselves and the rest of the world that we really do intend to make it a better place to live in. This is a job for architects, and architects of all people should take the lead in advocating planning now."

This committee, of which Frederick J. Woodbridge of New York is chairman, reported further that, "Planning has not been part of an engineer's training but it is the most fundamental part of the architect's. Engineers are needed to see that buildings stand up, that mechanical equipment works and for many other essentials, but architects are needed to plan. The architects' function as planners is often usurped by others who have invented a new terminology. . . . The proper function of the architect is to provide the best possible environment in which people can live and work and have their being. The best environment must be convenient and practical, safe and durable, and beautiful. Sir Henry Wotton's quaint dictum, 'Well building hath three conditions, commodity, firmness, and delight' is a timeless truth. . . ."

"There is a growing weight of evidence that in the future the architect must again be both planner and master builder. There must be no competition between architect and engineer, no antipathy or jealousy. Each has a sufficiently magnificent role to play which in close collaboration becomes yet more splendid. Toward the establishment of standards and procedures for this enlarged service the experience of architects in the war should greatly contribute. . . . Every architect, even though he may be obliged to give up his profession for the duration, must share the obligation to see to it that the rebuilding of the world shall be well and carefully planned."

An immediate speed-up of preparations for civilian defense against bombing attacks because "we may reasonably expect some desperate raids on morale within a period of months, or even of weeks," was urged in the report of the *Committee on Civilian Protection*, in which Horace W. Peaslee of Washington, D. C., chairman, said, . . . "surveys of possible safety zones have been dragging along for months," or have been only projected in many localities. Prompt action was urged in camouflaging industrial plants. If bombs were to fall in the United States this year, the report stated, there would be no time to accomplish anything in this direction even if the work began immediately.

Richmond H. Shreve of New York has been reelected president. Dean Walter R. MacCormack of the School of Architecture of the Massachusetts Institute of Technology was again named vice-president. Charles T. Ingham of Pittsburgh continues as secretary.

Raymond J. Ashton of Salt Lake City was chosen treasurer to succeed John R. Fugard of Chicago. New regional directors of the Institute are as follows: John F. Staub of Houston, Tex., Gulf States District; Henry H. Gutterson of San Francisco, Calif., Sierra-Nevada District; Albert Simons of Charleston, S. C., South Atlantic District.